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COMMONWEALTH OF MASSACHUSETTS

Norfolk ss.

To either Constable of the Town of Sharon, Greeting:

In the name of the Commonwealth of Massachusetts you are hereby directed to notify and warn the inhabitants of the Town of Sharon qualified to vote in elections and Town affairs to meet at the Arthur E. Collins Auditorium at the Sharon High School on Pond Street in said Sharon on Monday, the 9th day of April, A.D. 1984, at 8:00 P.M., and there to act on the following articles:

ARTICLE 1. To see if the Town will vote to authorize the Selectmen to sign, seal and deliver, for and in the name of the Town, an option agreement with Cannon Forge Development Company or Benjamin A. Simeone, et als, d/b/a Simeone Associates, et als, or both Cannon Forge Development Company and Simeone (all of whom together are hereinafter referred to as Cannon Forge Development Company), under the terms of which the Town would have the option to accept from Cannon Forge Development Company a deed conveying to the Town three parcels of land: Parcel 1, containing 20.7 acres, more or less; Parcel 2, containing 1.3 acres, more or less; and Parcel 3, containing 12 acres, more or less, shown on a plan entitled "Plan of Proposed Land Transfer between Cannon Forge Development Company and the Town of Sharon", dated January 30, 1984, and prepared by Norwood Engineering Company, Inc., as well as suitable easements giving the Town access to the aforesaid parcels and, in exchange therefor, to execute and deliver a deed conveying to Cannon Forge Development Company 25 acres, more or less, of land shown as Parcel A on the aforesaid plan; the option agreement and each of the said deeds to contain such restrictions, covenants and other terms as the Selectmen shall approve, their execution and delivery of the option agreement and the deed to Cannon Forge Development Company and their acceptance of the deed from Cannon Forge Development Company to be conclusive evidence of their approval; or act in any way relating thereto.

Development and Industrial Commission

ARTICLE 2. To see if the Town will vote to amend the Zoning By-Laws to create Planned Residential Development districts as follows, or act in any way relating thereto:

1. Clustered Multifamily Development

Amend Section 4330, Clustered Multifamily Development by deleting the same, consisting of Subsections 4331 through 4338, inclusive, in its entirety, and by substituting therefor the following Section 4330, consisting of Subsections 4331 through 4342, inclusive:

\*4330. Planned Residential Development (PRD)

4331. Purpose

For the purpose of promoting the more efficient use of land in harmony with its natural features, encouraging the preservation of Open Land for conservation, open space, and recreational use, preserving historical and archeological resources, protecting existing or potential municipal water supplies, all in accordance with the general intent of the Zoning By-Laws to protect and promote the health, safety, convenience and general welfare of the inhabitants of the Town of Sharon, any owner or owners of a tract of land having a minimum of 10 acres of land within a Suburban District, or an authorized agent or agents of such owner or owners, may make application to the Board of Appeals for a Special Permit for a Planned Residential Development subject to the provisions of Section 4314 and 6320 herein.

4332. Regulations

a) Except as otherwise indicated herein, any development within the PRD shall be subject to all otherwise applicable requirements of this By-Law.

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4333. Residential Uses

- a) Residential uses within a PRD may include:
  - 1) Single family detached dwellings,
  - 2) Attached dwellings, provided such structures, their parking, and their sewage disposal systems all lie outside the Lake Massapoag drainage basin.
- b) Dwellings may be built on individual lots or grouped on land held in common in accordance with 4334.
- c) Non-residential uses as listed in Section 4337 shall also be permitted.

4334. Development Density

- a) Development density shall be permitted at not more than two dwelling units per 40,000 square feet of land area exclusive of water bodies provided that there shall be no more than two bedrooms average per dwelling unit. A studio type unit shall be considered a one bedroom unit.
- b) Building Location
  - 1) Minimum street setback:  
From streets constructed or maintained wholly or in part by state funds under General Laws Chapter 90: forty (40) feet from the street sideline, or, if more restrictive, seventy (70) feet from the street centerline.  
From other streets: thirty (30) feet from street sideline, or, if more restrictive, fifty (50) feet from the street centerline.
  - 2) Minimum setback from side or rear lot lines:  
Residential buildings: twenty (20) feet.  
Other buildings: ten (10) feet.
  - 3) Minimum separation between unattached buildings on the same lot:  
Between buildings used for residential purposes: twenty (20) feet.  
Between other buildings: ten (10) feet.

4335. Open Land

- a) The total area of "Open Land" shall comprise at least 25% of the total area of the PRD.
- b) Open Land shall be either:
  - 1) conveyed to the Town of Sharon and accepted by it for park, open space, or active indoor and outdoor recreation uses or other municipal use, or
  - 2) conveyed to a non-profit organization the principal purpose of which is the conservation and maintenance of open space, or
  - 3) conveyed to a corporation or trust owned or to be owned by the owners of lots or residential units within the plan, with the selection of ownership to be approved by the Board of Appeals. If such a corporation or trust is utilized, ownership thereof shall pass with conveyances of the lots or residential units. In any case, where such land is not conveyed to the Town, a restriction enforceable by the Town of Sharon shall be recorded providing that such land shall be maintained as approved in the plan and not be built upon or developed for accessory uses such as parking or roadway, or
  - 4) a combination of the above alternatives for separate parcels within a tract of land.
- c) Not more than ten (10) per cent of such Open Land shall be devoted to impervious surfaces such as paved areas and structures used for, or as accessory to, active outdoor recreation consistent with the open space uses of such land.

4336. Amenities

- a) In keeping with Section 4331 of this By-Law, the applicant shall provide active and passive recreation facilities as part of the plan.
- b) The ownership and maintenance of these facilities shall be provided for in accordance with Section 4335 herein.







- c) Trails and land set aside for conservation or recreation purposes, shall be sited in a manner so as to form a cohesive system that bears a functional relationship to the population served.
- d) Active recreational facilities shall be provided to serve the projected population of the PRD.
- e) The inclusion of these facilities as shown on the final approved plan shall be a condition in the Special Permit for a PRD and shall further be secured by a performance bond as part of the guarantee for site improvements for issuance of building permits as described in the Town of Sharon Land Sub-Division Rules and Regulations as most recently amended.

4337. Non-Residential Uses

- a) The primary intent of non-residential uses is to serve the residents of the PRD. Therefore, space allocated for non-residential uses within the PRD shall be limited in accordance with this Section.
- b) Permitted non-residential uses within a Planned Residential District comprise the following:
  - 1) Indoor and outdoor recreation facilities designed for use of the residents.
  - 2) Maintenance, equipment and storage area provided that no portion is located within the Water Resource Protection District or Ground Water District.
  - 3) Country clubs and golf courses.
  - 4) In PRDs having a land area of 100 acres or more, two restaurants provided that the seating capacity of each not exceed fifty (50) seats.
  - 5) In PRDs having a land area of 100 acres or more, one each of personal service establishments such as beauty shops, barbershop, newsstand, dry cleaning pickup facility, pharmacy, professional offices such as medical doctors, dentists, attorneys, insurance and real estate, each not to exceed one thousand (1,000) square feet gross floor area.
  - 6) One convenience/general store for the entire PRD having a gross floor area not to exceed three thousand (3,000) square feet.
  - 7) All uses mandated by Section 3, Chapter 40A, of the Massachusetts General Laws.

4338. Accessory Buildings

Accessory building shall include all detached buildings used for parking and all recreational buildings for use of the residents such as clubhouses, cabanas, stables, and shelters. These are permitted uses and shall be incorporated and identified on the plan.

4339. Building Design

Departure from the visual scale of single-family development shall be minimized by including not more than ten (10) dwelling units in a single structure, each dwelling unit having its own entrance and by limiting building length to not more than two hundred (200) feet. No habitable floor shall be located below finished grade at its entire perimeter or above the second floor.

4340. Buffers

Visual separation from single family residential uses abutting the PRD shall be assured by providing yards of at least fifty (50) feet between any multifamily dwelling or parking lot or structure for five (5) or more vehicles and the boundary of the PRD abutting a single family residential district and through use of outdoor lighting fixtures not higher than fifteen (15) feet.







4341. Parking

Common parking areas, e.g. an area not immediately adjacent to any single unit designed to serve six or more dwelling units may be provided so long as:

- a) No more than twenty (20) spaces are provided in any one parking area.
- b) Two or more parking areas shall be separated from each other by at least twenty (20) feet.
- c) Each parking area shall comply with the requirements of Sections 3113 through and including Section 3117 of this Zoning By-Law.

4342. Application and Review Procedure

- a) To provide better communication and to avoid misunderstanding, applicants are encouraged to submit preliminary proposals for informal review prior to formal application. Upon written request, the Board of Appeals shall arrange a meeting for such review, inviting the Board of Appeals, Planning Board, Conservation Commission, Town Engineer, Department of Public Health, Police Department and Fire Department and any other officials deemed appropriate.
- b) Applicants for a Special Permit shall file with the Town Clerk nine (9) copies of the following, which shall have been prepared by an interdisciplinary design team including but not limited to a Registered Land Surveyor, a Professional Engineer, and a registered Architect or Landscape Architect:
  - 1) A plan of the proposed development endorsed by the Planning Board as conforming to the requirements of a Preliminary Plan as defined by the Land Subdivision Rules and Regulations of the Planning Board and to the intent of those Regulations. Such plans shall also indicate proposed topography and the results of recent deep soil test pits and percolation tests at the site or sites of the leaching area of the required septage treatment facility.
  - 2) An Environmental and Community Assessment as required by the Sharon Land Subdivision Rules and Regulations as most recently amended.
  - 3) Any additional information necessary at a level of detail commensurate with the scale of the development, as determined by the Board of Appeals.
  - 4) A report on the form of organization proposed to own and maintain the open space and common lands, and the substance of any covenants and grants of easements to be imposed upon the use of land and structures.
  - 5) A completed copy of an Environmental Notification Form (ENF) the original of which shall have been filed with the Massachusetts Environmental Protection Agency (MEPA) division of the Commonwealth of Massachusetts Executive Office of Environmental Affairs.
  - 6) A plan showing the planned sequence of construction of the development and its relationship to the overall Development Plan.
    - (a) Copies of these materials shall be transmitted forthwith upon receipt to the Board of Appeals, Planning Board, Conservation Commission, Town Engineer, Department of Public Works, Board of Selectmen, Board of Health, Police Department and Fire Department. Agencies other than the Board of Appeals shall submit reports on the proposal to the Board of Appeals within 35 days of the referral, and the Board of Appeals shall make no decision upon the application until receipt of all such reports or until 35 days have lapsed since date of referral without them."







## 2. Uses Allowed on Special Permit

Amend Section 2315, Uses Allowed on Special Permit as follows:

- (a) 2315 (a) (3) by deleting the Section 2315 (a) (3) in its entirety and substituting therefor the following Section 2315 (a) (3):

"(3) In Suburban District only single, two family and multifamily dwellings in a Planned Residential Development."

- (b) 2315 (c) (4) by adding the following Section 2315 (c) (4):

"(4) In Suburban Districts only, non-residential uses within a PRD as described in Section 4337 of this By-Law."

## 3. Clustered Multifamily Development

Amend Section 3143 Clustered Multifamily Development by deleting the words "Clustered Multifamily Development" wherever they appear in Section 3143 and substituting in each case therefor the words "Planned Residential Development (PRD)."

## 4. Site Plan Approval

Amend Section 6321 Site Plan Approval by adding the following Section 6321 (d):

"(d) In Suburban Districts for Planned Residential Developments."

## 5. Definitions

Amend Article V Definitions of the Zoning By-Laws as follows:

- (a) By adding the following definitions of "Dwelling, Attached" between the definition labelled "Dwelling" and the definition labelled "Dwelling Unit":

"Dwelling, Attached: A dwelling unit connected to another dwelling unit on one or both sides by a verticle party wall, garage, breezeway or similar structure."

- (b) By deleting the definition of "Open Land" in its entirety and substituting therefor the following:

"Open Land: Areas of a site unoccupied by buildings; unobstructed to the sky by man-made objects; not devoted to streets, driveways, off-street parking or loading; and suitable for recreation, gardens, or household service activities."

Development and Industrial Commission

ARTICLE 3. OFFICE PARK DISTRICTS To see if the Town will vote to amend the Zoning By-Law to create OFFICE PARK DISTRICTS as follows, or act in any way relating thereto:

### 1. District Use Regulations

Amend Article 2300, District Use Regulations, of the Zoning By-Law by adding the following Sections 2340 through 2346 inclusive:

#### 2340. Office Park Districts:

All uses permitted under this Section of the Zoning By-Law shall be contingent upon connection to a municipal or private sewage collection and treatment system of a design approved by such local, state, and federal agencies having jurisdiction over said approvals. In no case shall said system discharge effluent within the Water Supply Setback District or the Water Resource Protection District as defined in this Zoning By-Law.



2. These Rules shall be subject to the following provisions:

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(3) The Rules shall be subject to the following provisions:

7. The Rules shall be subject to the following provisions:

(1) The Rules shall be subject to the following provisions:



2341. Permitted Residential Uses:  
Nursing home or extended health care facility.
2342. Permitted Community Service Uses:
- (a) Municipal building, religious or educational uses, non-profit civic or religious service organization.
  - (b) Post office, telephone exchange provided that there is no service yard to garage.
  - (c) Religious or educational purposes on land owned or leased by a public body, religious sect or denomination, or non-profit educational corporation.
  - (d) Playground, playfield, tennis courts, swimming pool or like outdoor recreational facilities.
2343. Permitted Business and Commercial Uses.
- (a) Business, financial, professional or government offices.
  - (b) Bank with or without drive-up windows.
  - (c) Offices and clinics for medical, psychiatric, or other health services for the examination or treatment of persons as outpatients only including laboratories that are part of such offices or clinics.
  - (d) Commercial and non-profit radio or television transmission and reception facility provided that no combination of building and antenna or tower is in excess of the maximum building height permitted under this By-Law.
  - (e) Services related to the types of businesses permitted in this district such as printing and duplication services, telephone answering services, and messenger services.
  - (f) Private membership athletic and health club.
  - (g) Day nursery, nursery school, or other agency providing day care for children.
  - (h) Restaurant or cafeteria within a permitted building, primarily for the use of the occupants of the building, provided there shall be no exterior evidence of same.
2344. The following uses shall be permitted only by Special Permit of the Board of Appeals:
- (a) Motel or hotel provided that the following are complied with:
    - (1) Minimum floor area per unit, not including corridors and public floor areas, shall be 240 square feet.
    - (2) No motel or hotel unit floor elevation shall be located below the mean grade level of the land.
    - (3) No more than ten (10) per cent of the public floor area (lobby, function rooms, restaurants) shall be used for accessory commercial uses such as newsstands, barber or beauty shops, vending machines, gift shops, or offices other than those offices necessary to the management of the motel or hotel.
  - (b) Single family detached and single family attached housing provided that:
    - (1) The parcel of land have a minimum area of ten (10) acres.
    - (2) The parcel of land abuts and has a functional relationship to a Planned Residential Development (PRD) district.
    - (3) With the exception of b.1. above, the proposed development complies with all the requirements for a Planned Residential Development as per Section 4330 of this Zoning By-Law as amended.
2345. Building location.
- (a) Minimum street setback: One hundred (100) feet to the side line or one hundred and fifty (150) feet to the centerline of any street or way, unless such street or way is defined as limited access by the Massachusetts Department of Public Works, in which







case any external wall may be located as close as thirty (30) feet to the side line as long as the distance from the wall to the edge of the nearest traveled way is in excess of one hundred and fifty (150) feet and such land which remains unused by virtue of this requirement shall be used only for walks, drives, visitor parking areas, or flagpoles, and all land not so used or improved shall be maintained in grass or landscaping.

- (b) Minimum setback from side or rear lot lines: If boundary of a single, suburban, or general residence district, or an adjoining lot used for residential purposes, or any Town boundary: one hundred (100) feet, half the area and width of which shall be maintained in planting or landscaping sufficient in character and extent to provide a suitable screen between properties. Other lot lines: Thirty (30) feet.
- (c) Minimum separation between unattached buildings on the lot: twenty (20) feet.

2346. Building Height:

- (a) To exceed neither three (3) stories nor forty-five (45) feet.
- (b) Buildings and structures greater than three (3) stories or forty-five (45) feet in height but not more than five (5) stories or sixty-five (65) feet in height may be allowed by Special Permit from the Special Permit Granting Authority provided that said buildings or structures are so designed and located as to avoid visual incongruity, loss of privacy on nearby properties, or excessive shadows.

2. Dimensional Regulations Amend Article II Section 2400, Dimensional Regulations, of the Zoning By-Law by adding the following Sections 2480 through 2484, inclusive:

2480. Office Park District Requirements.

2481. Minimum Lot Area: one hundred thousand (100,000) square feet.

2482. Minimum Lot Width: two hundred fifty (250) feet.

2483. Maximum Lot Coverage Exclusive of Parking: twenty-five (25) per cent.

2484. Maximum Floor Area Ratio (FAR): one-fourth (.25).

3. General Regulations Amend Article III, General Regulations, of the Zoning By-Law by deleting Sections 3100 through 3117, inclusive, therefrom in their entirety, and by substituting therefor the following Sections 3100 through 3117, inclusive:

3100. Off-Street Parking and Loading.

3110. Business and Office Park District Parking Requirements. In Business and Office Park Districts, off-street parking and loading shall be provided to at least the following minimum specifications.

3111. Number of Parking Spaces Required:

The minimum number of parking spaces required shall be as follows:

- (a) For religious and public educational institutions: one parking space per 600 square feet of gross floor area.
- (b) For other places of public assembly, such as for meetings, entertainment, recreation, adult education, service of food or beverages: one parking space per five (5) fixed seats or ten (10) lineal feet of bench, or where no seats or benches are provided, one







parking space per twenty (20) square feet of floor area open to public assembly.

- (c) For bowling alleys: two (2) parking spaces per bowling alley.
- (d) For all other permitted office uses: four (4) parking spaces per one thousand (1,000) square feet of gross leasable area.
- (e) For all other permitted commercial uses: five (5) parking spaces per one thousand (1,000) square feet of gross leasable area.
- (f) For residential uses there shall be two (2) parking spaces per dwelling unit.

Requirements for parking spaces shall be interpreted as follows:

- (g) Where the computation of required spaces results in a fractional number, a fraction of one-half or more shall be counted as one.
- (h) No existing building use on a lot non-conforming as to parking may be expanded or changed to a use requiring more parking spaces unless provision is made for additional parking spaces at least equal to the difference between the requirements for the proposed enlargement or new use and the present parking requirement.
- (i) Where it can be demonstrated that the combined peak parking needs of all the uses sharing the lot will, because of differences in peak hours or days, be less than required by Subparagraphs 3111 (a)-(e), the number of parking spaces to be provided may be reduced accordingly by Special Permit from the Board of Appeals, but only for as long as this condition exists.

3112. Location of Parking: All parking, including access thereto, which is accessory to uses within the Business and Business Park districts shall be provided within the same district. All required parking shall be provided on the same lot or lots as the principal use or uses to which it is accessory, except that off-street parking whose pedestrian entrance is within a 200 foot walk of the entrance to the business lot or lots it serves may be counted towards the fulfillment of the minimum parking requirements in the following manner:

- (a) If the parking lot is privately owned, the parking spaces shall be credited to the owner, or to the several users thereof as formally agreed between them and the owner and recorded on the deed to the parking lot, but no such parking lot shall be otherwise used or diminished in size except insofar as the Board of Appeals may find that the lot is no longer required by the users thereof.
- (b) If the parking lot is publicly owned, each lot having business district frontage within a 200 foot walk of any pedestrian entrance to the parking lot shall be credited with a proportion of the public parking spaces corresponding to the proportion the private lot's business district frontage bears to the total business district frontage of all lots so situated which do not already meet the requirements for off-street parking.

3113. Design of Parking Spaces and Aisles:

- (a) Each required off-street parking space shall be marked and shall be large enough to contain a rectangle measured not less than nine (9) by eighteen (18) feet, for conventional spaces and eight (8) feet by fourteen (14) feet for compact car spaces, except for spaces parallel to the driveway, which shall be at least nine (9) by twenty-five (25) feet, exclusive of drive and maneuvering space.







- (b) One-third (1/3) of the parking spaces provided shall be designed and marked as reserved for compact cars.
- (c) Each required parking space shall have direct access to an aisle or driveway having a minimum width of twenty-four (24) feet in the case of two-way traffic, or the following minimum widths in the case of one way traffic only:
  - (1) Parking Angle      parallel 30°, 45°, 60° 90°
  - (2) Minimum width  
     (1 way traffic)    12', 10', 15', 18', 20'
- (d) Handicapped spaces shall be provided according to the latest standards of the Massachusetts Architectural Barriers Board as amended.

3114. Location and Width of Curb Cuts:

- (a) Except for access to loading bays or private residential driveways, there shall be no more than one driveway from the street to a parking lot for the first one hundred (100) feet of lot frontage, nor more than one (1) additional driveway for each additional one hundred (100) feet of frontage.
- (b) Driveways intersecting the street shall be no less than sixty-five (65) feet on center.
- (c) No curb cut shall be less than twelve (12) feet nor more than thirty (30) feet in width.

3115. Requirements for Off-Street Loading

- (a) In the Business A district there shall be at least one loading bay for any building containing more than one thousand (1,000) square feet of gross leasable business floor area.
- (b) In the Office Park and Business B district there shall be at least one loading bay for any building containing more than 10,000 but less than 50,000 square feet of gross leasable floor area, and at least two loading bays for any building containing 50,000 square feet or more of gross leasable floor area.
- (c) No loading bay shall be less than twelve (12) feet by fifty (50) feet for food stores, nor less than twelve (12) feet by thirty (30) feet for any other business, nor provide less than fourteen (14) feet of vertical clearance.
- (d) The loading bay shall be so laid out as to minimize parking maneuvers within a street, way or parking aisle.

3116. Maintenance of Parking and Loading Areas: All accessory driveways, parking and loading areas shall be graded, surfaced with a dust-free material and drained, all to the satisfaction of the Town Engineer and to the extent necessary to prevent nuisance of dust, erosion, or excessive water flow across public ways or the property of others.

3117. Required Landscaping:

- (a) No parking or loading shall be permitted within ten (10) feet of the side line of any street or way.
- (b) Any parking or loading within a required yard abutting a residential district, except for accessory parking on a lot used solely for residence, shall be screened from such district by a strip at least four (4) feet wide, densely planted with shrubs or trees which are at least four (4) feet high at the time of planting and which are of a type that may be expected to form a year-round dense screen at least six (6) feet high within three (3) years, or by an opaque wall, barrier, or uniform fence at least five (5) feet high, but not more than seven (7) feet above finished grade. Such screening shall be maintained in good condition at all times.
- (c) The total landscaped area maintained in lawns, woodshipped areas or ornamental planting shall not equal less than thirty (30) per cent of the total lot area. All areas not built over, paved or landscaped shall be maintained in natural vegetation. Where usable open space is required, it shall count in its entirety as part of the total landscaped area, even if partially paved for recreational uses as permitted by Subparagraph 4221 (c).





4. Establishment of Districts Amend Section 2110, Establishment of Districts, by adding the words "Office Park District" thereto.
5. Prohibited Activities Amend Article 3324 (b), Prohibited Activities, as follows:

after the word "premises" delete the word "or" and insert the following:

"except for purposes of creation of water retention ponds, aquifer recharge ponds, or conservation related projects and".

6. Industrial District Amend Section 4120, Industrial District, by deleting the words "Industrial District" therefrom and substituting therefor the words "Business, Office Park, and Industrial Districts".
7. Water Resource Protection District Amend Section 4533, Water Resource Protection District, by adding the words: "In residential zones" before the word "impervious" in the first sentence, and by adding the following as a second paragraph of Section 4533:

"In non-residential zones, surface water runoff and aquifer recharge provisions shall be made so that no less than eighty-five (85%) per cent of the average annual on-site recharge, calculated based on an equivalent area of land covered by natural vegetation, shall be maintained."

8. Definitions Amend Article V Definitions by adding the following definition of Floor Area Ratio between the definition of "Floor Area, Habitable" and the definition of "Garage, Group".

"Floor Area Ratio (FAR): The gross floor area of all buildings on a lot divided by the lot area.

Example: 
$$\text{FAR} = \frac{\text{Total Building Floor Areas}}{\text{Total Lot Area}}$$

$$\text{FAR} = .25 \quad .25 = \frac{100,000 \text{ s.f. Building Floor Areas}}{400,000 \text{ s.f. lot}}$$

9. Site Plan Approval Amend Section 6321 Site Plan Approval by adding the following Section 6321(d):

6321. (d) In Office Park District.

Development and Industrial Commission

ARTICLE 4. To see if the Town will vote to amend Article II, Section 2120, by deleting date "March 1983", and by substituting in place thereof the date of a map showing the boundaries of the districts and any changes in the existing districts voted at this meeting, and by adopting as the Zoning Map the map showing such districts and changes, except that any districts subject to the Attorney General's approval will be so identified, or act in any way relating thereto.

Development and Industrial Commission

ARTICLE 5. To see if the Town will vote to raise and appropriate a sum of money for the development, design, purchase and installation of computer hardware, other data processing equipment and computer assisted integrated financial management and accounting systems, and to determine whether the money shall be provided by taxation, by transfer from available funds, or by a combination thereof, or act in any way relating thereto.

Board of Selectmen





ARTICLE 6. To see if the Town will vote to raise and appropriate a sum of money for the development, design, purchase of computer software incident to the purchase, installation and operation of computer hardware and other data processing equipment and computer assisted integrated financial management and accounting systems, and to determine whether the money shall be provided by taxation, by transfer from available funds or by a combination thereof, or act in any way relating thereto.

Board of Selectmen

And you are directed to serve this Warrant by posting attested copies of the same in accordance with the Town By-Laws.

Hereof fail not, and make due return of this Warrant with your doings thereon, at the time and place of meeting aforesaid.

Given under our hands this eighth day of February, A.D. 1984.

---

NORMAN KATZ, Chairman

---

COLLEEN M. TUCK

---

MICHAEL L. COOK

BOARD OF SELECTMEN  
SHARON, MASSACHUSETTS

Attest: \_\_\_\_\_  
ALBERT R. HORAN, Constable  
Sharon, Massachusetts  
February 8, 1984





WATER AND WATER QUALITY ASSESSMENT

CANNON-FORGE

SHARON, MASSACHUSETTS

February 24, 1984

prepared for:

Cannon-Forge Development Co.  
77 North Washington Street  
Boston, Mass. 02114



prepared by:

Carr Research Laboratory, Inc.  
17 Waban Street  
Wellesley, Mass. 02181

by Jerome B. Carr  
Jerome B. Carr, Ph.D.





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## 1.0 Introduction

It is proposed to build a large commercial and residential project on a parcel of land at the Sharon-Foxborough border. This project lies in both towns. The Sharon portion of the project lies upstream of the Foxborough portion. The proposal is to subdivide the land and construct (1) 880 dwelling units, (2) 1.2 million square feet of office space and (3) 100,00 square feet of shopping space. The construction in Sharon is 280 dwelling units, about 800,000 square feet of the commercial office space, and the shopping center.

The main reasons for this study are the concerns of the Town of Sharon about the impacts of this project on the water supply for well 5, which lies on Town Water Department land immediately adjacent to this property. Thus the main focus of the report deals with three main impacts of this proposed project, i.e., (1) impacts on "available groundwater" for the well, (2) impacts of the water demand from this project on the existing town water supply and pumping capacity, and (3) water quality impacts on the aquifer which feeds well 5. Not only will this study focus on the Cannon Forge project, but the study will also make a comparison with the same area being developed as single family housing per the zoning regulations. In this way, the town can compare the Cannon Forge project with the most likely alternative for putting this land to productive use. Note that these comments apply to the well fields in Foxborough as well. The numbers will be slightly different for Foxborough, but the general relationships will be the same.

For the purposes of this review, the evaluation point is the culvert at the exit of Gavins Pond. The location of this culvert was selected as the evaluation point because (1) the culvert lies almost exactly on the Sharon-Foxborough town line, (2) the present Sharon well might be drawing water from this pond during low flow periods, and (3) the town and developers are negotiating for transfer of one or more well sites near Gavins Pond to the town. Thus this design point addresses not only the existing well, but any future well that may be installed near Gavins pond.

The Sharon portion of the project is located in the southwestern portion of town. The present access to the site is off South Main Street in Sharon near the interchange of South Main Street with Route 95. The site locus is shown on Figure 1. In addition this figure shows the outline of the drainage basin tributary to Gavins Pond.

Since portions of the aquifer which feeds well 5 lie under the site for this proposed development, this environmental review focuses on the geology and hydrology of this area, relative to this existing water supply well. The comments made about the geology and hydrology of the existing well will also apply to any new well field near Gavins Pond.

## 2.0 Site Description

The site covers some 367 acres in Sharon, including some land swaps with the town. However, not all of this land is tributary to Gavins Pond, some being tributary to areas in Foxborough. In addition, there are some areas of the development in Foxborough which are tributary to Gavins





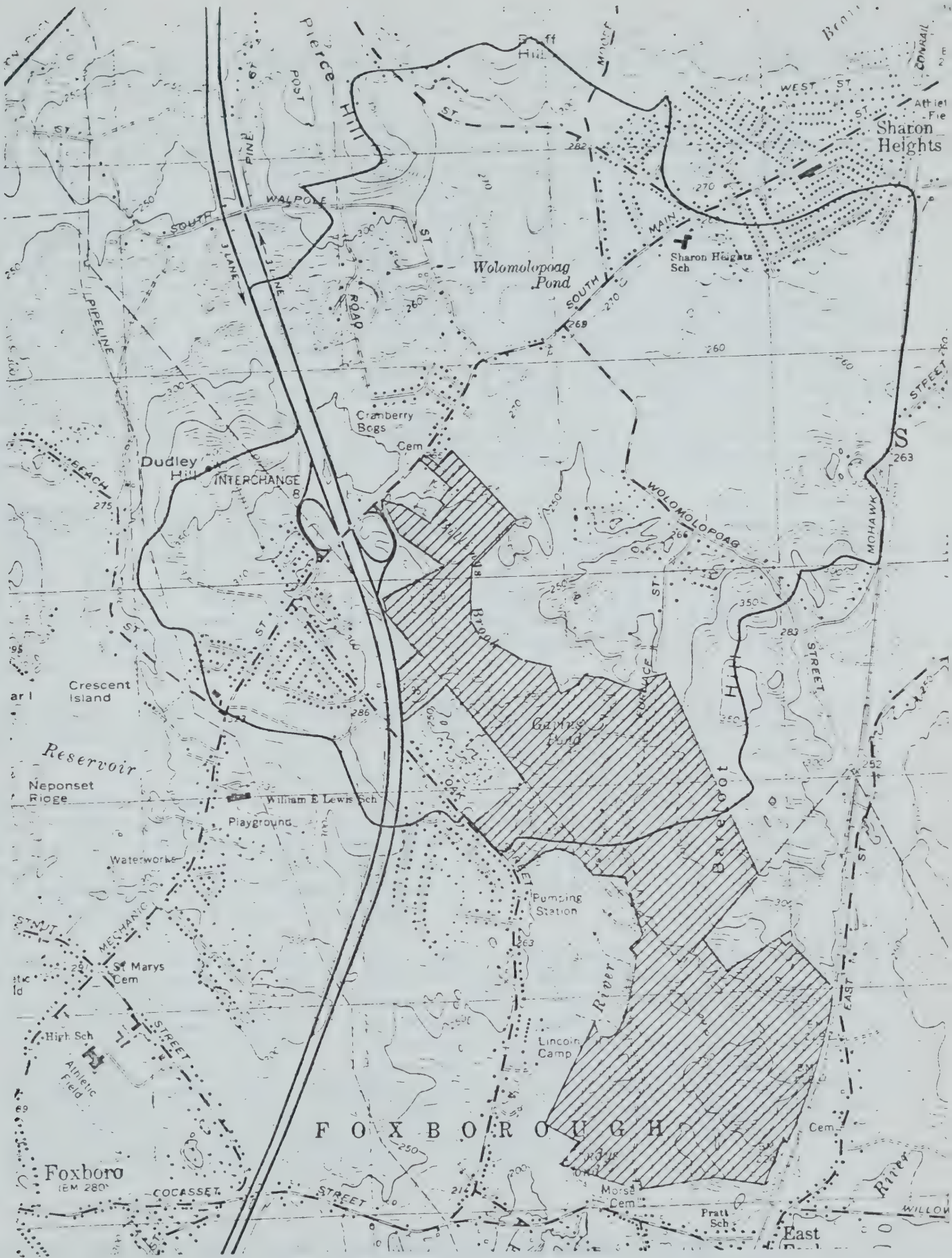


Figure 1. Locus of Cannon Forge Project and Drainage Divide For Gavins Pond.

1000 C 1000

Feet





Pond. Thus the actual area of the project tributary to the Gavins Pond culvert is 330 acres.

The land use types on the site include brooks, wetlands, abandoned gravel pits, and wooded areas. Starting with the brooks, Billings Brook is the main brook on the site. Above the site, this brook passes through a series of cranberry bogs, and it receives drainage from a 1.6 mile section of Route 95. Billings Brook enters the northwest corner of the site, emerging from a culvert which passes under South Main Street. The brook cuts across the site and then reaches a cat-tail wetland and begins a meandering course through the wetland. Shortly after reaching the wetland, the brook actually defines the property boundary between the site and part of the Water Department land around the existing town well. The brook then comes back onto the site, and is then joined by another brook which drains the large offsite wetland which lies west of Massapoag Lake. The flow from these two brooks then continues downstream to Gavins Pond. The only other stream on site is a small intermittent stream about 1,000 feet north of Gavins Pond. This stream starts in Foxborough and cuts across the site and flows into Billings Brook.

The wetlands on the site are dominated by cat-tails. In some locations, red maples and other shrubs are moving into the wetlands. Most of the wetlands lie along Billings Brook or around the upper portions of Gavins Pond. The edges of portions of the wetlands are defined by a steep slope where filling took place some time ago. Thus the wetland border is abrupt. There are some minor wetlands along the small tributary brook. In addition, there is one area of isolated wetland on the edge of one of the gravel removal areas.

A significant portion of the total site is disturbed by a major gravel removal operation which occurred in the past. Thus cuts from this operation, and the disposal of waste rock and lower grade soils as fills, has left a major area that is pretty barren except for a sparse cover of upland weeds. Examples of weeds in the disturbed areas include grasses, sweet-fern, goldenrod, round headed bush clover, and indigo. The main hydrological point about this disturbed area is that the lack of vegetation means less interception during rainfall events. Thus both runoff and recharge are enhanced due to lowered interception and evapotranspiration in the stripped areas.

The rest of the site is shrubs and woods. From aerial photographs and a ground level inspection, it is obvious that the forested areas of the site have been logged several times in the past. Thus almost all of the uplands on the site have been disturbed at some time in the past. In fact, there are signs that some recent tree cutting has occurred on site. The only areas of dense trees that show up in the aerial photographs are some small portions of the site immediately adjacent to Route 95 and Oak Street, plus an undisturbed area east of Gavins Pond. Some of these areas show signs of logging and are dominated by trees much smaller than found in a typical climax forest.

### 3.0 Site Geology

Almost the entire site lies over deposits of sands and gravels. According to U.S. Geological Survey Maps (Ref. 1), the glacial tills on the site lie (1) right along the eastern side of Route 95 and (2) east





of line about half way between Gavins Pond and the eastern Sharon-Foxborough town line. These glacial tills mark the boundaries of the aquifer that feeds the existing town well. The log for the town well lists the following soils.

From 0 to 36 feet = very fine sand and silt.

From 36 to 46 feet = medium to fine sand with silt.

From 46 to 47 feet = fine sand.

From 47 to 58 feet = medium to coarse sand and gravel.

The well terminates at the 58 foot depth.

According to reference 1, the general thickness of unconsolidated sediments is about 80 feet in this area. Also, according to published soil logs (Ref. 2.), till underlies the sands and gravels at general depths of about 30 feet at distances as small as 500 feet from the existing well. Thus glacial tills, which are not aquifer materials, underlie the sands and gravels which are aquifer materials.

Site specific soils data exist for the northern third of the site in the form of soil logs from test pits dug for percolation testing in 1983. The Town Engineer, Mr. William Dowdell, observed these test pits and percolation tests. The results from all the test pits are presented in Appendix A. In general, sands and gravels were the materials recorded on site. The engineering plans for Quail Ridge Acres show the test pit locations.

The bedrock geology of the area is defined in reference 3 as being diorite for the northwestern portion of the site and the Dedham Quartz Monzonite and the Barefoot Hill Quartz Monzonite for the remainder of the site. All of these igneous rocks are aquifuges and have no groundwater flow in or through them except in fractures. Thus the bedrock defines the lower limit of the water bearing unconsolidated sediments.

#### 4.0 Site Hydrology

The first issue to be discussed is the issue of "available groundwater" in the aquifer. The term "available groundwater" can be defined as "water which gets into the groundwater system and which will leave the system via either (1) pumping of the aquifer, or (2) releases of groundwater into local surface drainage systems." This latter component of stream flow is known as base flow. The development of the term "available groundwater" will be better understood after the water budget is described.

In this case, the most practical approach to the water supply issue is a water budget analysis. A water budget for a project this small is done by defining the land use character in the natural state, the proposed state, and for any alternative states that are likely. Each land use alternative has water budget components defined for the specific land use configuration and thus a weighted average for each component of the hydrologic system can be calculated for each site alternative. A water budget is calculated as follows.

The first item is precipitation, which is the basic water input. This is the only water source for the basin which can make a contribution to the groundwater system. Once the precipitation is known, then interception





In the table below, we present the water budgets for 4 alternatives of land use. These 4 alternatives include (1) the natural condition as above, (2) the site as a residential area with no more than 15% of each lot impervious, (3) the Cannon Forge project without an effort to recharge groundwater, and (4) the land as it presently exists with a major portion of the site stripped of topsoil and ranging from completely barren to a poor cover of common weeds.

It must be stressed that the Cannon Forge option evaluated below, does not include the recharge structures which will be an eventual part of the final project. The final Cannon Forge project will include a significant effort to maintain the recharge to the groundwater system. What is being stressed here is that there are a large number of options open to Cannon Forge for achieving any reasonable recharge goal. These options will be presented after the discussion of the water budgets.

WATER BUDGET TABLE. All units in inches per year.

	Natural	Residential	C.F.	Stripped
Precip.	45	45	45	45
Intcpt.	- 4.6	- 3.5	- 3.0	- 2.1
Dir Run.	- 8.2	-14.7	-18.5	- 8.5
GW Input	32.2	26.8	23.5	34.4
Evapot.	-19.7	-16.5	-16.0	-15.4
Avail GW	12.5	10.2	7.5	19.0
% Natural	100%	82%	60%	152%

The comparison of these water budgets reveals some interesting items. The first item that stands out is that stripping the land actually yields more "available groundwater" than any other land use. This is because there is less interception and less evapotranspiration than for any other option. The second item which stands out is that, with these figures, the actual volume of "available groundwater" generated on this site can be computed. The results are presented below.

100% Natural Cover = 343.8 acre-feet

85% Natural Cover = 292.2 acre-feet

Cannon Forge

without recharge = 206.2 acre-feet

These numbers can be used to evaluate the various recharge options.

It should be stressed that for Cannon Forge, there are a large number of recharge options. These options include the following basic elements:

- recharge of runoff from roofs of buildings;
- recharge of runoff from parking lots;
- recharge of runoff from roadways on site;
- recharge by converting wetlands to ponds; and
- other recharge techniques which would yield smaller increments in recharge.





The first recommended technique is recharge from roofs of buildings. This would produce 62 acre-feet of water. The next recommended technique is to recharge water from the parking lots. This would produce 144.4 acre-feet of recharge. The technique of recharging roadway runoff could produce 35.1 acre-feet of recharge. However, this is not recommended because of potential water quality problems. This roadway runoff quality issue is discussed in more detail in section 6.4 of this report. The technique of converting additional amounts of vegetated wetlands to ponds would yield another 4.78 acre-feet of water for each acre of new pond created. Other techniques are also available for increasing "available groundwater". While most of these would produce only small amounts of added recharge, there is one exception. If areas are landscaped, not with lawns, but rather with crushed stone or a bark mulch, the transpiration in recharge areas can be eliminated or severely reduced. The gain would be 1.1 acre feet per acre of lawn converted to such "recharge" landscaping.

Given the number alternatives above, and the number of possible combinations of these items, it is easy to see that there are a large number of design options open for Cannon Forge to achieve almost any design goal. For example, if the design goal is maintaining 85% of the land with a "natural" vegetation cover, one simple alternative is to recharge all of the roof runoff plus 17% of the runoff from parking areas. If the design goal is 100% of the recharge from a "natural" area, one simple alternative is to recharge the roof runoff plus 53% of the parking lot runoff. If one is looking for 120% of natural recharge, then one simple alternative is to recharge all the roof and parking lot runoff. Even if one is looking for 152% of "natural" recharge, then one option is to recharge the parking lot and roof runoff, plus convert another 23 acres of wetland into pond. This just shows that recharge for the Cannon Forge site can be achieved at any reasonable level by any of several design options.

One of the items requested by the Town Engineer is to develop an evaluation standard for recharge basins. Since it is not known if sub-surface recharge basins will be used, or if grass or stone lined surface retention basins will be used, it is difficult on short notice to develop a universal standard for town use. However, it is clear that such a standard can be developed and before the final plans are submitted for this project, a set of recharge standards will be developed for the town's use.

Having dealt with the issue of recharge on site, we can now turn to the the issue of total "available groundwater" in the Gavins Pond drainage basin. The area tributary to Gavins Pond is 2201 acres. With an average annual runoff of 21 inches per year, the base flow component of that is 3023 acre-feet per year as the "available groundwater." Since the normal pumping rate of well 5 is 250 gpm, and since the well is in continuous use, the well draws 403.3 acre-feet per year. This is 13.3% of the "available groundwater". This means that 86.6% of the "available groundwater" is not being used at present, but is being released as base flow. If the site is converted to a land use with a potential of 85% of the recharge for a "naturally vegetated" site, then the change in present use of "available groundwater" is only a 1.1%. This still means that 85.5% of the "available groundwater" will be released unused into downstream areas such as the Foxborough well fields.





Even if 100% of "natural land" recharge is maintained, the only change is a 0.2% increase in "available groundwater" and this is simply lost to downstream areas because the present supply more than satisfies the existing demand, even if a new well is added to the system.

## 5.0 Water Demand

Given that this project will create a host of new water users over the next 10 years, it is clear that this demand should be quantified relative to the town's basic ability to satisfy this demand. Thus a water demand evaluation has been prepared and is described below.

The water demand for this project consists of three major uses, domestic, commercial, and offices. In addition several minor water uses might also occur such as restaurants and motels. Thus let us assume the following uses of the buildings on the Sharon portion of the project.

280 dwellings @ 2.8 persons per unit x 100 gpd/person	= 78,400 gpd
100,000 sq. ft shopping center with a restaurant	
95,000 sq. ft at 5 gallons/ 100 sq. feet	= 4,750 gpd
200 seat restaurant at 35 gallons/seat/day	= 7,000 gpd
760,000. ft of office @ 75 gal/1000 sq. ft.	= 57,000 gpd
one 100 room motel @ 110 gpd per room	= 11,000 gpd
total water use	= 158,150 gpd
converting to million gallons per day	= 0.158 MGD

Notice that by adding a motel and restaurant, and with the associated loss of office and shopping space, the result is 0.008 MGD higher than for straight office and store use. This is not a significant change.

Notice further that the numbers above cannot be compared directly to numbers used for evaluation of the sewage treatment plant. For example, the hydrological areas do not match the town lines, and there is a difference between water demand and sewage generation because not all water used is returned via sewage systems.

Turning to the present ability of the Sharon Water Department to deliver water, the present sustained pumping capacity of the existing system is 3.528 MGD. In review of actual pumping records, the maximum one day pumping record is 3.114 MDG. This leaves 0.414 MGD available pumping capacity on a sustained basis. Note further, that the maximum one day pumping capacity is 4.608 MDG which is more than 30% greater than the sustained pumping capacity.

The recorded peaking factor for Sharon is 2.4 times the average daily consumption. Applying this factor to the estimated demand of 0.158 MGD, the result is 0.379 MGD. This tells us that the peak daily demand for the town, plus the peak from this project, can still be satisfied within the sustained pumping capacity existing for the town at present. Above that, the town still has a 30% safety factor to satisfy an extreme one day demand.

The next issue is groundwater storage. Any kind of storage is an alternative to maintaining flow through a system. In the case of Cannon





Forge, there will be 6 new ponds in the wetland areas. Allowing 27 inches (2.25 feet) for evaporation from the surfaces of the ponds, any excavation of materials below that depth allows added water storage. Since the void space in sands and gravels is typically 30%, then for every cubic foot of materials removed from a pond, the result is 0.7 cubic feet of new storage for water in the groundwater system.

Converting the average water demand for the Cannon Forge project into a volume, yields 177.0 acre-feet of water consumed on the site. A small percentage of this will be recharged on site, but most will leave the area via the mandated sanitary sewer system. This volume of water used on site, will be partially restored by new storage in the new ponds. The deeper the ponds get, the more of the new demand can be satisfied by new storage. If the ponds have an average depth of 7.25 feet, then 28% of the water use is satisfied by new storage. If the ponds are 15 feet deep, then 71% of the new demand can be satisfied by new storage. If the town desires 100% storage recovery, then in addition to new 15 foot deep ponds, Gavins pond will have to be made larger, or made deeper by excavation or a higher dam. If Gavins Pond is just made deeper, the increase in depth will have to be 3.0 feet to bring storage to 100% of demand.

It should be stressed here, that there is no reason to store an entire year's water demand since pond storage is refilled during every period of excess precipitation. Given that 85% of the present "available groundwater" goes unused, a reasonable storage number is based on the fact that in low flow years, the average annual runoff is reduced by 40% of the mean annual flow. Since 60% of the "available groundwater" is always generally available, and since during the period from November to April there is always excess water in the system, a reasonable storage value is half of the missing 40%, or 20% of the new demand. This 20% can be achieved by making the new ponds an average depth of 5.8 feet.

## 6.0 Water Quality

Water quality is the second major aspect of the total aquifer issue. There are a number of water quality issues, and each is covered separately below. It should be noted, that for comparison purposes, the Cannon Forge project will be compared with water quality impacts from a conventional sub-division. In this way the Town of Sharon will have a clearer picture of the two most likely future conditions for this site.

### 6.1 Bacteria and Viruses

As a pre-condition for the eventual construction of Cannon Forge, all the buildings will be served by a sewage treatment plant located downstream from the Sharon and Foxborough water supply wells. A conventional sub-division does not generate the economic base to offer a sanitary sewer system, and thus, all homes in a conventional sub-division will be on septic tanks.

With a sanitary sewer system, there will be no new sources of human waste on the site for the Cannon Forge alternative. However, as a conventional sub-division, there will be 194 new homes tributary to the aquifer upstream from Gavins Pond. These 194 homes will have about 2.8 persons per home who will use about 90 gallons of water per day each.





Seven percent of that water will be lost to the atmosphere or via surface runoff, and the rest will be returned to the soils above the aquifer. This is about 16.6 million gallons or 51 acre-feet of sewage introduced into the upper layer of the aquifer. While Title 5 of the State Sanitary Code is recognized as satisfactory for groundwater protection, it is clear that a Cannon Forge with zero on-site sewage is a better alternative than a residential sub-division. This comment certainly applies to the Foxborough well fields as well as the Sharon water supply wells.

## 6.2 Nutrients

The Town of Sharon requires an analysis of nutrients in sewage as part of the environmental evaluation of any large sub-division. Here again, the Cannon Forge site will offer no significant nutrient loading to the groundwater, while a conventional sub-division will offer a nutrient load associated with 16.6 million gallons of sewage. While phosphorus has no health related impacts, nitrogen in the form of nitrites and nitrates does. While a residential sub-division would cause a small increase in the nitrite + nitrate levels, Cannon Forge would offer no such increase. Again, while a residential sub-division may result in an acceptable water quality, Cannon Forge is better.

## 6.3 Road Salt

The issue of road salt is really an issue of sodium. The chloride component offers no health related impacts. A complete sodium balance for the drainage basin was conducted to evaluate the increase in sodium from the Cannon Forge project. With 100 pounds of road salt per lane mile per application, and given that Cannon Forge will have 5.2 lane miles of roadway, it turns out that there will be a total of an 11% increase in sodium use in the drainage basin. The present sodium level in well 5 is 11 parts per million (ppm). Thus the 11% increase will bring the level to 12.2 ppm. Since the health guidelines are 20 ppm, the sodium level will still be lower than the guideline.

Comparing Cannon Forge to a conventional residential sub-division, the new roadway will be 10.3 lane miles which will generate a 22% increase in sodium use in the drainage basin. This tells us that Cannon Forge offers only half the new salt loading than will a conventional sub-division. Again, while the conventional sub-division leaves the water in satisfactory condition, the Cannon Forge project will leave the water in better condition.

In terms of minor sodium sources, Cannon Forge will have the potential for some "carry-in" salt by vehicles parking in the commercial areas. However, most of this salt will be a film on the car body, and will leave the area when the car departs. The blocks of packed snow and ice, which collect under a car and may be dropped on melting, is estimated to increase the salt loading by less than 1% of the expected addition via salting the new roads. This converts to a total sodium increase from 11% to 11.1% for Cannon Forge. As for a residential sub-division, note that sewage does contain sodium salts. The sodium increase is calculated as 0.34% of total salt use in the basin from the new on-site sewage disposal. For a residential land use, the increase in sodium rises from 22% to 22.3%. Thus the salt from sewage from a residential site will





exceed the salt from carry-in and release by vehicles.

#### 6.4 Other Roadway Runoff Issues

The issue of roadway quality has to be discussed here as a separate item because of the complexity of the issue. To begin with, a typical roadway has curbs, and these curbs act as wind-shields which trap debris. This debris is washed off the roads during rainfall events which are of large enough magnitude to produce runoff. This debris is typically trapped within a foot of the curbs and is the major source of pollutants detected in urban runoff.

In addition, vehicle travel speed is greatest on roadways. Thus vehicles are operating at higher speeds and pollution generation is greater. In addition, road salts are directly applied to street surfaces and accidents are greater in number and severity than for other impervious surfaces.

Thus in terms of protecting water quality, it is better to avoid the direct recharge of road runoff and to rush the water via a conventional storm drain system into existing surface water channels. Here the water will quickly by-pass the well fields and water quality impacts will be minimized. It should be stressed that when rainfall occurs, not only does water demand drop, but discharge wetlands along Billings Brook will be more active in releasing water. Thus storm water recharge is minimal from surface streams into the aquifers during periods of rainfall. Thus groundwater quality is best served by getting roadway runoff into surface streams and past the wells as soon as possible.

Turning now to parking lots, the pollution issue is not as significant as for roadways. First, the amount of curbing per unit area of pavement is less for parking lots than for roads. Thus the wind-shielding is less on parking lots and more pollutants are removed by the wind. Second, the number of vehicles passing over a given unit area of paved surface is far less for parking lots than for roadways. For example, in an office parking space, the number of vehicle motions will be zero to maybe 10 or 12 per day. In the driving areas of a parking lot for office space, there may be a few hundred vehicles passing overhead. However, for a roadway, the number of vehicle motions will be in the tens of thousands. Thus the parking lots receive far less pollution per unit area. In addition, (1) bacteria attack, (2) volatilization and chemical decay, and (3) bonding surface area per unit of pollution are all greater for parking lots. Thus the parking lots hold and/or decay pollutants more efficiently than do roadways. Thus the water quality from parking lot runoff is much better than for an equivalent area of roadway.

In addition for these parking lots, there will be either no sodium chloride use, or such use will be limited by town regulation. Thus the salting issue for parking lots will be minor or will not apply.

Finally, it must be repeated that pollution generation per unit area of parking lot is much less than for an equivalent area of road. This factor alone means that recharge of parking lot runoff is clearly superior to, and clearly more acceptable than, recharge from an active roadway system. With the proposed oil and gas traps, the parking lot runoff will be of even better quality.





## 6.5 Major Spill Protection

The most likely locations of a major spill of some kind of hazardous waste are on Route 95 or South Main Street. At the present time, the aquifer is not protected by any means from the effects of such a spill. For a conventional sub-division, the same lack of protection is expected.

However, for Cannon Forge the first pond downstream from Route 95 and South Main Street will offer two protection measures that are presently lacking. The first protection mechanism is an aeration system, whereby air-water contact will be used to strip volatile organics from a major or minor spill. This will improve surface water quality before the water can get near the downstream well field. As an added measure of protection, the first pond will contain a sub-surface water release control structure so that oil or other floating hazardous materials will be trapped in this pond. After trapping, removal can be accomplished with less cost while protecting the downstream water supply well and associated ponds and wetlands. While 100% protection of the aquifer cannot be achieved for every possible contingency, the Cannon Forge project will offer substantially more protection than just restoring the gravel pits or a residential development.

## 6.6 Wetland Impacts on Water Quality

Many individuals believe that all wetlands improve water quality. This is clearly a falsehood. While some wetlands may improve water quality, most wetlands, in fact, degrade water quality.

Consider first that most wetlands are discharge wetlands. That is, they are at the end of the groundwater flow regime, just before the water is released as base flow. Thus the water has already flowed through the underlying aquifer before reaching these wetland areas.

Next consider that typical swamp water is high in iron, manganese, color, turbidity, and often is high in nitrogen and phosphorus. When this water is released into surface streams, this brown swamp water is referred to as "New England tea." This hardly matches the view of water purification by wetlands.

In the specific case of well 5 in Sharon, this well produces good water, only after being run for a while. At initiation of pumping, the well has water that is high in iron, color, turbidity and nitrites (Ref. 4). All of these items come from the wetlands adjacent to Billings Brook, and only after the swamp water has been largely removed, does well 5 yield an acceptable quality water. This shows that, in this specific instance, the wetlands degrade the average aquifer quality.

For the Cannon Forge project, 6 new ponds will be created in wetland areas. Thus there will be less wetlands to act as pollution sources for the well field. Thus the new ponds will yield water quality benefits greater than a residential sub-division without the new ponds.





## 7.0 Summary

The Cannon Forge project offers considerable advantages over a conventional residential sub-division. These benefits apply to a water supply wells in Sharon, and to a similar degree in Foxborough. The specific benefits include:

- more on-site recharge for the groundwater system;
- adequate new groundwater storage relative to the new demands for water;
- a sanitary sewer system which means that 16.6 million gallons of sewage will be eliminated from the areas near the well field;
- less than half the highway salt;
- some water quality protection from spills on Route 95; and
- 6 new ponds will decrease swamp pollutant loading for the existing well.

In addition, the project will yield one or more new well sites for the Town of Sharon.

In terms of town infra-structure, the water demand from this project can be satisfied by the existing pumping capacity in the town. Thus the new demand does not pose a problem for the existing water supply system. As a related item, the increased tax base created by this project, will allow the town to add to its infra-structure because the new project will generate more revenue than demand for town services. On all counts, the Cannon Forge project has acceptable impacts on water and water quality, and actually offers benefits relative to the alternative of a conventional sub-division, even when build under the Aquifer Protection By-Law.



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## APPENDIX A. SOIL LOGS

- Test Pit #1 = 0 to 6 inches = loam & topsoil.  
6 inches to 2.5 feet = boney gravel.  
2.5 to 10 feet = brown fine sand, some gravel.  
Perked at 3.5 feet.
- Test Pit #2 = 0 to 7 feet = boney gravel.  
7 to 10 feet = coarse gravel.
- Test Pit #3 = 0 to 2 inches = topsoil.  
2 inches to 3 feet = silty gravel.  
3 feet to 10 feet = gravel with brown sand  
No water observed.
- Test Pit #4 = 0 to 6 inches topsoil  
6 inches to 2 feet = sandy gravel.  
2 feet to 6 feet = medium brown sand.  
6 feet to 9 feet = fine brown sand.  
No water observed.
- Test Pit #5 = 0 to 4 feet = boney gravel.  
4 to 10 feet = brown medium sand, some gravel.
- Test Pit #6 = 0 to 3.5 feet = sandy gravel.  
Water at this depth.  
Soil was rusty with possible bog iron.  
Layer of black peat.
- Test Pit #7 = 0 to 1 foot = topsoil and subsoil.  
1 to 3 feet = fine sand.  
3 to 3.5 feet = layer of black peat.  
3.5 to 5 feet = rusty clay and fine sand.  
Water at 3.5 feet.
- Test Pit #8 = 0 to 2 inches = topsoil.  
2 to 12 inches = fine brown sand.  
12 to 14 inches = topsoil  
14 inches to 6 feet = medium brown sand.  
Water at 4.5 feet.
- Test Pit #9 = 0 to 0.5 feet = topsoil.  
0.5 to 4 feet = fine brown sand.  
Water at 4 feet.
- Test Pit #10 = 0 to 2 inches = topsoil.  
2 inches to 4 feet = fine brown sand.  
Water at 4 feet.
- Test Pit #11 = 0 to 2 inches = topsoil.  
2 inches to 7 feet = fractured rock.  
7 to 9 feet = medium sand with trace of silt.





Test Pit #12 = 0 to 2 inches = topsoil  
2 inches to 4 feet = fractured rock fill  
4 feet = refusal.  
Re-excavated and refusal = 7 feet.

Test Pit #13 = 0 to 4 inches topsoil.  
4 inches to 2.3 feet = topsoil with sand lenses  
2.3 to 4 feet = subsoil.  
Water at 4 feet.

Test Pit #14 = 0 to 0.5 feet = loam and topsoil.  
0.5 to 7.5 feet = rock fill.  
7.5 to 9 feet = loam.  
9 to 10 feet = rusty sand with silt.  
Water at 9.5 feet.

Test Pit #15 = 0 to 0.5 feet = topsoil.  
0.5 to 3 feet = gravel with blasted rock.  
3 to 9 feet = rock fill and fines.  
Water at 8.5 feet.

Test Pit #16 = 0 to 1.25 feet = topsoil & subsoil.  
1.25 to 4.5 feet = rock fill with silt.  
4.5 to 10 feet = boulders.  
Water at 9 feet.

Test Pit #17 = 0 to 6 feet = rocks and boulders with fines.  
Large boulder at bottom.

Test Pit #18 = 0 to 2 inches = topsoil  
2 inches to 8.7 feet = gravel with sand lenses.  
Water at 7.7 feet.

Test Pit #19 = 0 to 0.5 feet = topsoil and subsoil.  
0.5 to 7 feet = coarse sand and gravel.  
Water at 5 feet.

Test Pit #20 = 0 to 2 inches = topsoil.  
2 inches to 7.3 feet = fine sand.  
Water at 6.3 feet.

Test Pit #21 = 0 to 1 foot = topsoil and subsoil.  
1 foot to 2 and 3 feet (wedge) = brown fine sand.  
3 feet to 10.5 feet = sand and gravel.  
No water.

Test Pit #22 = 0 to 1.2 feet = topsoil and subsoil.  
1.2 to 4 feet = rusty gravel, some bog iron.  
4 to 7.25 feet = sandy gravel.  
Water at 4 feet.



Test Pit #23 = 0 to 2 inches = topsoil.  
2 inches to 2 feet = gravel fill.  
2 to 9 feet = odoriferous peat and fill.  
Water at 9 feet.

test Pit #24 = 0 to 3 feet = topsoil and subsoil.  
3 to 8 feet = sandy gravel with lenses of fine sand.  
Water at 7 feet.

Test Pit #25 = 0 to 0.5 feet = topsoil and subsoil.  
0.5 to 2 and 5.5 feet (wedge) = fine brown sand.  
2 and 5.5 feet to 5.5 feet = roots and peat.  
Water at 3 feet.

Test Pit #26 = 0 to 1.3 feet = loam.  
1.3 to 4.5 feet = fill of brown sandy gravel  
with lenses of loam.

Test Pit #27 = 0 to 10 feet = gravel with lenses of coarse sand.  
No water.

Test Pit #28 = 0 to 2.4 feet = gravel fill.  
Water at 2.4 feet.





## APPENDIX B - WATER BUDGET ANALYSIS

The water budget was developed by use of the following data. Mean annual rainfall, mean annual runoff, and mean annual lake evaporation are all taken from reference 5. The breakdown of mean annual runoff into direct runoff (storm flow) and groundwater discharge (base flow) for upland areas has been derived by analyzing 8 years data from a small drainage basin in Bolton, Mass. (Ref. 6). This basin was chosen because (1) it is easiest to detect runoff from small events in a small drainage basin, (2) the basin has very little wetlands and thus wetland impacts are negligible, and (3) the drainage basin has an igneous geology and thus deep groundwater transport out of the basin is negligible.

Data on interception by forests was taken from reference 7 and applied to 10 years of precipitation statistics from Worcester (Ref. 8) and corrected for snowfall based on 5 other local weather stations. After the interception from woods was determined, then the interception for lawns and fields was estimated from information presented in reference 7.

The interception for impervious surfaces was determined from storm runoff studies described in reference 9 applied to 10 years of Worcester precipitation data. The impacts from changes in interception in natural areas were distributed proportionally into direct runoff and groundwater recharge as seen in the Bolton, Mass. data (Ref. 6). For impervious surfaces, all precipitation greater than interception was assigned to direct runoff. All other values for direct runoff were derived from the basic data discussed above using best professional judgement to adjust for differences in land use and soil characteristics.

Transpiration values for wetlands were derived from references 10 and 11, which relate transpiration in wetlands to lake evaporation (Ref. 5). Given that the interception and evaporation components for upland evapotranspiration were previously quantified, the transpiration values in upland areas were defined as groundwater input minus observed base flow in Bolton, Mass. (Ref 6). The transpiration is then adjusted via best professional judgement for density of vegetation and hydrologic soil classifications specific to this site.

It should be stressed that these basic statistics were not developed for this study, but have been developed over the years in dealing with various lake, wetland and urban hydrology studies. These statistics have been reviewed by state and federal agencies and have been accepted in numerous Environmental Impact Statements.

In the tables which follow, the values derived above are assigned to the various hydrologic soil type and land use classes. Then weighted averages are calculated for the specific distributions of land uses and soil types for the "natural" site, the Cannon-Forge project, a residential plan, and the existing conditions on site. The weighted averages then enter the table on page 6 for the summary water budget calculations.





SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-"Natural" Analysis Date 2/13

Pre-Development, Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Interception		Interception
		<del>CN</del>	Area	Area x <del>CN</del>
<u>pond</u>	<u>D</u>	<u>0.1</u>	<u>17.1</u>	<u>1.17</u>
<u>wetlands</u>	<u>D</u>	<u>3.5</u>	<u>38.0</u>	<u>133.0</u>
<u>woods-good</u>	<u>A</u>	<u>5.3</u>	<u>89.3</u>	<u>473.29</u>
<u>woods-good</u>	<u>D</u>	<u>5.3</u>	<u>19.7</u>	<u>104.41</u>
<u>meadow-good</u>	<u>A</u>	<u>4.8</u>	<u>156.2</u>	<u>749.76</u>
<u>meadow-good</u>	<u>D</u>	<u>4.8</u>	<u>9.7</u>	<u>46.56</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total Area			<u>330</u>	<u>1508.73</u> Total

Average ~~CN~~ = 4.57  
Interception



SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-"natural" Analysis Date 2/13

Pre-Development, Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Direct Runoff <del>CN</del>	Area	Direct Runoff Area x <del>CN</del>
<u>pond</u>	<u>D</u>	<u>44.9</u>	<u>17.1</u>	<u>767.79</u>
<u>wetlands</u>	<u>D</u>	<u>5.7</u>	<u>38.0</u>	<u>216.6</u>
<u>woods-good</u>	<u>A</u>	<u>6.0</u>	<u>89.3</u>	<u>535.8</u>
<u>woods-good</u>	<u>D</u>	<u>7.0</u>	<u>19.7</u>	<u>137.9</u>
<u>meadow-good</u>	<u>A</u>	<u>6.1</u>	<u>156.2</u>	<u>952.82</u>
<u>meadow-good</u>	<u>D</u>	<u>7.2</u>	<u>9.7</u>	<u>69.84</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total Area			<u>330</u>	<u>2680.75</u> Total

Average ~~CN~~ = 8.12  
Direct Runoff



1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1801. It is a very important document, as it is the first time that the President has addressed the Congress since the establishment of the office.

2. The second part of the document is a report from the Secretary of the Navy, dated January 10, 1801. It contains information about the state of the Navy and the ships that are in service.

3. The third part of the document is a report from the Secretary of the Treasury, dated January 15, 1801. It contains information about the state of the Treasury and the finances of the government.

4. The fourth part of the document is a report from the Secretary of the War, dated January 20, 1801. It contains information about the state of the War and the troops that are in service.

5. The fifth part of the document is a report from the Secretary of the Interior, dated January 25, 1801. It contains information about the state of the Interior and the lands that are in service.

6. The sixth part of the document is a report from the Secretary of the Education, dated February 1, 1801. It contains information about the state of the Education and the schools that are in service.

7. The seventh part of the document is a report from the Secretary of the Agriculture, dated February 5, 1801. It contains information about the state of the Agriculture and the crops that are in service.

SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-"Natural" Analysis Date 2/13

Pre-Development, Post-Development Analyst JBC

Storm Intensity          Year Storm

Rainfall          Inches in 24 Hours

Average Slope          Percent

Land Use	Soil Group	Evapotranspiration		EVT Area x <del>CN</del>
		<del>EN</del>	Area	
<u>pond</u>	<u>D</u>	<u>27</u>	<u>17.1</u>	<u>461.7</u>
<u>wetlands</u>	<u>D</u>	<u>81</u>	<u>38.0</u>	<u>3078.0</u>
<u>woods-good</u>	<u>A</u>	<u>10</u>	<u>89.3</u>	<u>893.0</u>
<u>woods-good</u>	<u>D</u>	<u>12</u>	<u>19.7</u>	<u>236.4</u>
<u>meadow-good</u>	<u>A</u>	<u>11</u>	<u>156.2</u>	<u>1718.2</u>
<u>meadow-good</u>	<u>D</u>	<u>12</u>	<u>9.7</u>	<u>116.4</u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
Total Area			<u>330</u>	<u>6503.7</u> Total
Average <del>CN</del> =				<u>19.7</u>
Evapotranspiration				





# SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/10  
Pre-Development, X Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Interception		Interception	
		<del>CN</del>	Area	Area x <del>CN</del>	
<u>roads</u>	<u>D</u>	<u>2</u>	<u>9.8</u>	<u>19.6</u>	
<u>roofs</u>	<u>D</u>	<u>2</u>	<u>17.3</u>	<u>34.6</u>	
<u>parking</u>	<u>D</u>	<u>2</u>	<u>40.3</u>	<u>80.6</u>	
<u>ponds</u>	<u>D</u>	<u>0.1</u>	<u>24.1</u>	<u>2.41</u>	
<u>woods-good</u>	<u>D</u>	<u>5.3</u>	<u>1.6</u>	<u>8.48</u>	
<u>woods-good</u>	<u>A</u>	<u>5.3</u>	<u>9.0</u>	<u>47.7</u>	
<u>woods-fair</u>	<u>D</u>	<u>2.6</u>	<u>15.3</u>	<u>39.78</u>	
<u>woods-fair</u>	<u>A</u>	<u>2.6</u>	<u>45.3</u>	<u>117.78</u>	
<u>meadow-fair</u>	<u>D</u>	<u>2.4</u>	<u>9.7</u>	<u>23.28</u>	
<u>meadow-fair</u>	<u>A</u>	<u>2.4</u>	<u>12.5</u>	<u>30.0</u>	
<u>lawns</u>	<u>A</u>	<u>4.2</u>	<u>114.4</u>	<u>480.48</u>	
<u>wetlands</u>	<u>D</u>	<u>3.5</u>	<u>30.7</u>	<u>107.45</u>	
Total Area			<u>330</u>	<u>992.16</u>	Total

Average ~~CN~~ = 3.0  
Interception



## SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/10Pre-Development, x Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Direct Runoff <del>CN</del>	Area	Area x <del>CN</del> Direct Runoff
<u>roads</u>	<u>D</u>	<u>43</u>	<u>9.8</u>	<u>421.4</u>
<u>roofs</u>	<u>D</u>	<u>43</u>	<u>17.3</u>	<u>743.9</u>
<u>parking</u>	<u>D</u>	<u>43</u>	<u>40.3</u>	<u>1723.9</u>
<u>ponds</u>	<u>D</u>	<u>44.9</u>	<u>24.1</u>	<u>1082.09</u>
<u>woods-good</u>	<u>D</u>	<u>7.0</u>	<u>1.6</u>	<u>11.2</u>
<u>woods-good :</u>	<u>A</u>	<u>6.0</u>	<u>9.0</u>	<u>54.0</u>
<u>woods-fair</u>	<u>D</u>	<u>7.2</u>	<u>15.3</u>	<u>110.16</u>
<u>woods-fair</u>	<u>A</u>	<u>6.2</u>	<u>45.3</u>	<u>280.86</u>
<u>meadow-fair</u>	<u>D</u>	<u>7.3</u>	<u>9.7</u>	<u>708.1</u>
<u>meadow-fair</u>	<u>A</u>	<u>6.3</u>	<u>12.5</u>	<u>78.75</u>
<u>lawns</u>	<u>A</u>	<u>6.2</u>	<u>114.4</u>	<u>709.28</u>
<u>wetlands</u>	<u>D</u>	<u>5.7</u>	<u>30.7</u>	<u>174.99</u>

Total Area 330 \ 6107.63 TotalAverage ~~CN~~ = 18.5  
Direct Runoff





SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/10  
Pre-Development, X Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Evapotranspiration		EVT Area x <del>CN</del>
		<del>CN</del>	Area	
<u>roads</u>	<u>D</u>	<u>0</u>	<u>9.8</u>	<u>0</u>
<u>roofs</u>	<u>D</u>	<u>0</u>	<u>17.3</u>	<u>0</u>
<u>parking</u>	<u>D</u>	<u>0</u>	<u>40.3</u>	<u>0</u>
<u>ponds</u>	<u>D</u>	<u>27</u>	<u>24.1</u>	<u>650.7</u>
<u>woods-good</u>	<u>D</u>	<u>12</u>	<u>1.6</u>	<u>19.2</u>
<u>woods-good</u>	<u>A</u>	<u>10</u>	<u>9.0</u>	<u>90.0</u>
<u>woods-fair</u>	<u>D</u>	<u>12</u>	<u>15.3</u>	<u>183.6</u>
<u>woods-fair</u>	<u>A</u>	<u>10</u>	<u>45.3</u>	<u>453.0</u>
<u>meadow-fair</u>	<u>D</u>	<u>6</u>	<u>9.7</u>	<u>58.2</u>
<u>meadow-fair</u>	<u>A</u>	<u>5</u>	<u>12.5</u>	<u>62.5</u>
<u>lawns</u>	<u>A</u>	<u>11</u>	<u>114.4</u>	<u>1258.4</u>
<u>wetlands</u>	<u>D</u>	<u>81</u>	<u>30.7</u>	<u>2486.7</u>
Total Area			<u>330</u>	<u>5262.3</u> Total

Average ~~CN~~ = 15.946  
 Evapotranspiration





# SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon-Residential Analysis Date 2/18

Pre-Development, Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Interception		Interception
		CN	Area	Area x CN
ponds	D	0.1	17.1	1.71
wetlands	D	3.5	30.7	107.45
roads	D	2	18.5	37.0
impervious	D	2	39.6	79.2
lawns	A	4.2	200.0	840
lawns	D	4.2	24.1	101.22

Total Area 330 \ 1166.58 Total

Average CN = 3.5  
Interception



SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon-Residential Analysis Date 2/18  
Pre-Development, Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Direct Runoff		Direct Runoff
		CN	Area	Area x CN
ponds	D	44.9	17.1	767.79
wetlands	D	5.7	30.7	174.99
roads	D	43	18.5	795.5
impervious	D	43	39.6	1702.8
lawns	A	6.2	200.0	1240
lawns	D	7.2	24.1	173.52
Total Area		330	4854.6	Total

Average  $CN = \frac{4854.6}{330} = 14.7$   
 Direct Runoff





SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon-Residential Analysis Date 2/13

Pre-Development, Post-Development Analyst JBC

Storm Intensity \_\_\_\_\_ Year Storm

Rainfall \_\_\_\_\_ Inches in 24 Hours

Average Slope \_\_\_\_\_ Percent

Land Use	Soil Group	Evapotranspiration		EVT
		<del>CN</del>	Area	Area x <del>CN</del>
pond	D	27	17.1	461.7
wetlands	D	81	30.7	2486.7
roads	D	0	18.5	0
impervious	D	0	39.6	0
lawns	A	6.2	200.0	2200
lawns	D	7.2	24.1	289.2
Total Area			330	5437.6
				Total

Average ~~CN~~ = 16.48  
Evapotranspiration





SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/8

X Pre-Development,      Post-Development Analyst JBC  
(Land Stripped)

Storm Intensity      Year Storm

Rainfall      Inches in 24 Hours

Average Slope      Percent

Land Use	Soil Group	Interception CN	Area	Interception Area x CN
<u>wetlands</u>	<u>D</u>	<u>3.5</u>	<u>38.0</u>	<u>133</u>
<u>woods-good</u>	<u>A</u>	<u>5.3</u>	<u>21.5</u>	<u>113.95</u>
<u>woods-good</u>	<u>D</u>	<u>5.3</u>	<u>2.2</u>	<u>11.66</u>
<u>woods-fair</u>	<u>A</u>	<u>2.6</u>	<u>67.8</u>	<u>176.28</u>
<u>woods-gair</u>	<u>D</u>	<u>2.6</u>	<u>17.5</u>	<u>45.5</u>
<u>meadow-fair</u>	<u>A</u>	<u>2.4</u>	<u>12.5</u>	<u>30.0</u>
<u>meadow-fair</u>	<u>D</u>	<u>2.4</u>	<u>9.7</u>	<u>23.28</u>
<u>meadow-good</u>	<u>A</u>	<u>4.8</u>	<u>0.8</u>	<u>3.84</u>
<u>pond</u>	<u>D</u>	<u>0.1</u>	<u>17.1</u>	<u>1.71</u>
<u>gravel</u>	<u>A</u>	<u>1.0</u>	<u>142.9</u>	<u>142.9</u>
<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

Total Area 330 \ 682.12 Total

Average CN = 2.067  
Interception



SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/8

X Pre-Development,        Post-Development Analyst       

Storm Intensity        Year Storm

Rainfall        Inches in 24 Hours

Average Slope        Percent

Land Use	Soil Group	Direct	Area	Direct Runoff
		Runoff <del>CN</del>		Area x <del>CN</del>
<u>wetlands</u>	<u>D</u>	<u>5.7</u>	<u>38.0</u>	<u>216.6</u>
<u>woods-good</u>	<u>A</u>	<u>6.0</u>	<u>21.5</u>	<u>129.0</u>
<u>woods-good</u>	<u>D</u>	<u>7.0</u>	<u>2.2</u>	<u>15.4</u>
<u>woods-fair</u>	<u>A</u>	<u>6.2</u>	<u>67.8</u>	<u>420.36</u>
<u>woods-fair</u>	<u>D</u>	<u>7.2</u>	<u>17.5</u>	<u>126.0</u>
<u>meadow-fair</u>	<u>A</u>	<u>6.3</u>	<u>12.5</u>	<u>78.75</u>
<u>meadow-fair</u>	<u>D</u>	<u>7.3</u>	<u>9.7</u>	<u>70.81</u>
<u>meadow-good</u>	<u>A</u>	<u>6.1</u>	<u>0.8</u>	<u>4.88</u>
<u>pond</u>	<u>D</u>	<u>44.9</u>	<u>17.1</u>	<u>767.79</u>
<u>gravel</u>	<u>A</u>	<u>6.7</u>	<u>142.9</u>	<u>957.43</u>
<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>
<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>

Total Area 330 \ 2787.02 Total

Average ~~CN~~ <sup>XX</sup> = 8.45  
Direct Runoff





SCS MODIFIED SOIL COVER COMPLEX METHOD - AVERAGE CN

Project Name Cannon-Forge-Sharon Analysis Date 2/9

X Pre-Development,        Post-Development Analyst JBC

Storm Intensity        Year Storm

Rainfall        Inches in 24 Hours

Average Slope        Percent

Land Use	Soil Group	Evapotranspiration in in./yr		
		<del>CN</del>	Area	Area x <del>CN</del> EVT
wetlands	D	81	38.0	3078
woods-good	A	10	21.5	215
woods-good	D	12	2.2	26.4
woods-fair	A	10	67.8	678.0
woods-fair	D	12	17.5	210.0
meadow-fair	A	5	12.5	62.5
meadow-fair	D	6	9.7	58.2
meadow-good	A	11	0.8	8.8
pond	D	27	17.1	461.7
gravel	A	2	142.9	285.8
Total Area			330	5084.4 Total

Average ~~CN~~ = 15.41  
Evapotranspiration  
in in./yr











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Testing Laboratories  
Incorporated

East Natick Industrial Park  
6 Huron Drive • Natick, MA 01760  
(617) 235-7330, 653-5950  
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Inspection • Evaluation • Analysis  
Research • Development



Branch Laboratories:  
Springfield, Mass. 01104  
(413) 734-6548

Auburn, Mass. 01501  
(617) 832-5500

to: Carr Research Lab.  
17 Waban Street  
Wellesley, MA 02181  
Attn: Dr. J. Carr

Date: 10/19/83  
Job No. 40882-1  
Lab No. 0380  
Order No. None

Material: Water sample  
Heat No. None  
Specifications: None

Sample ID: 1 Water sample from Gavin's Pond 10/3/83

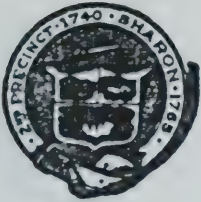
Phosphate, Total (mg/l)	0.05
Phosphate, Ortho (mg/l)	0.05
Total Kjeldahl-Nitrogen (mg/l)	4.9
Ammonia (mg/l)	0.02
Nitrite (mg/l)	<0.005
Nitrate (mg/l)	<0.025
Total Alkalinity (mg/l)	13.79
Iron (mg/l)	0.40
Magnesium (mg/l)	1.95
Sodium (mg/l)	21
Calcium (mg/l)	7.0
Potassium (mg/l)	1.1

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND THIS  
19th DAY OF OCTOBER 1983  
ARNOLD GREENE TESTING LABORATORIES, INC.

James J. Baril  
James J. Baril, Manager

UNLESS STIPULATED IN WRITING BY YOU, ALL SAMPLES WILL BE RETAINED FOR 30 DAYS AND THEN DISPOSED OF.  
THIS REPORT IS RENDERED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED WHOLLY OR IN PART FOR ADVERTISING AND / OR OTHER  
PURPOSES OVER OUR SIGNATURE OR IN CONNECTION WITH OUR NAME WITHOUT OUR SPECIAL PERMISSION IN WRITING





NORMAN KATZ  
CHAIRMAN  
COLLEEN M. TUCK  
MICHAEL L. COOK

## BOARD OF SELECTMEN

SHARON, MASSACHUSETTS 02067

**RECEIVED**  
CANNON FORGE

BENJAMIN E. PURITZ  
EXECUTIVE SECRETARY  
784-6900

**FEB 24 1984**

February 24, 1984

These reports were submitted to the Board of Selectmen at its meeting of February 23rd, and are being forwarded to you for your information.







TOWN OF SHARON  
POLICE DEPARTMENT

213 SOUTH MAIN STREET  
P.O. BOX 315  
SHARON, MASS. 02067

ALBERT R. HORAN  
CHIEF OF POLICE

784-3535

784-5300

M E M O

FROM: Albert R. Horan, Chief of Police  
TO: Benjamin Puritz, Executive Secretary, Board of Selectmen  
SUBJECT: Cannon Forge/Quail Ridge Developments - Comments as to Public Safety Considerations  
DATE: February 16, 1984

Jim Polito and I met jointly to examine both sets of plans as most recently submitted. On examination of these plans, we feel that the following assumptions can be made:

A. TRAFFIC

That with either development, there will be a substantial increase in traffic flow particularly in the morning and evening hours; that the Quail Ridge development, if approved, will have all ways eventually accepted as public and will be the responsibility of the town. Naturally, this will necessitate road maintenance, water services, and police/fire services as well. It is estimated that on completion the Quail Ridge development will consist of approximately 225-250 residential houses which could be considered comparable to the total of 280 proposed condominiums/town house units in the Cannon Forge development. Each consists of a total of approximately a 5% increase over the 4629 actual places of residence in the community as of this date. Obviously, the police and fire departments must service all residents whether on public or private ways, so it is difficult to make a distinction between the two. Cannon Forge will have all roads other than Holly Lane as private ways and maintenance would not be the responsibility of the community.

B. ACCESS ROADS

1. Both fire and police chiefs agree that the time has come for the town to adopt proper bylaws and regulations relating to parking on private ways and access to private ways as well as control of parking for the handicapped and disabled with appropriate access therefor. We have anticipated this development and will be proposing legislation to take care of any situation which may arise within the private way sector or access roads such as in the Cannon Forge development. This bylaw is overdue and will also apply to shopping centers and other private condominium and apartment developments for the safety and convenience of the public.

2. We further anticipate increased traffic on South Main Street with an increase in the incidents of accidents, particularly on the main thoroughfare as well as the need for ambulance services when required.

3. Of concern, too, is the reduction in traffic flow and possible blockage of emergency equipment and a delay in response time caused by heavy traffic. As was found at the Foxboro Stadium, these situations are usually on a trial and error basis and after a period of time traffic flow automatically adjusts.



Page 2

RE: Cannon Forge/Quail Ridge Developments - Comments as to Public Safety  
Considerations  
February 16, 1984

C. ALTERNATIVE ACCESS ROAD

1. Cannon Forge Development - Both police and fire chiefs anticipate that access must be provided for both emergency departments should an emergency warrant the same. This could be accomplished by a gate setup, etc.

2. Quail Ridge Development - There are no alternative access roads on this plan, and this will probably be determined by the eventual development in town and adjacent property in the Town of Foxboro.

D. GENERAL SERVICES

In this category, with an approximate 5% increase in residential development, it is safe to anticipate that the calls for service will be increased at least to that proportion. Our experience in these developments is little, but can only refer to the Sharon Green Condominiums site which has produced a minimal amount of calls over the past several years. The location, density, and age of population to some degree will effect the type of services rendered, but will at least require minimum patrols and the general services category extended to other sections of the community.

E. OFFICE PARK

Our department has had no experience with an office park per se, but would have to place this in the same category as the number of businesses we have in the industrial areas on Route 1 and Route 95. Most of these establishments, with the exception of Metal Bellows, work on a day shift basis, that is, occupying the building during normal work hours. Services to these establishments have been minimal, most in the burglar alarm category, with almost no calls during the day-time hours. At least one of these private companies employs a security guard system which alleviates our department from security responsibilities. All have some type of burglar alarm either directly connected to our station or to a central office.

A further consideration for the office park is the increase in traffic flow which I have referred to in Paragraph A.

ARH:jlh

cc. James Polito, Fire Chief



THE UNIVERSITY OF CHICAGO

IN THE DEPARTMENT OF THE HISTORY OF ARTS  
AND ARCHITECTURE

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Page 3

RE: Cannon Forge/Quail Ridge Developments

F. Office Park

Our department has had no experience with an office park per se; however, similar to the police department we would have to place this park in the same category as the businesses we now have in town. Fire protection systems and sprinkler systems are very sensitive; however, responses by the fire department to this area are minimal. This includes injury calls for ambulance service. The office complex would require a special permit. If issued, a section of this permit would include meeting fire department specifications for safety and protection even if in some instances exceeds codes.



# MEMORANDUM



TO: W. J. Roache

DATE: January 30, 1984

REF: 0643-93

FROM: L. R. Welford

RE: Structural Review of Plans for  
Bridge S-9-16, Interstate Route 95  
Under Relocated South Main Street,  
Sharon, Mass.

A review of the construction plans for the subject bridge has been made for the purpose of determining what impacts could be expected if the bridge is used by four travel lanes, two travelling in each direction. These conclusions are the result of reviewing the construction plans only, and are not based on any field inspections or structural analyses. My findings are as follows:

- o Bridge has a curb-to-curb width of 44 feet 0 inches.
- o Design load stated on Plans is H20-44.
- o Design is in accordance with AASHO, 1961 Edition.
- o A review of applicable Sections of the 1961 Edition of AASHO indicates that standard trucks are assumed to occupy 10 feet wide design traffic lanes. Section 1.2.6 requires that a bridge with 44 foot curb-to-curb width be designed for four lanes of traffic.
- o Under current Massachusetts Department of Public Works standards, South Main Street, as a local road, or as a secondary highway, would be designed for H20-44 loading unless a large volume of truck traffic is anticipated throughout the life of the structure.
- o Based on the above findings, it is possible to conclude that this structure was designed to support H20 loading, the same loading it would be designed for if it were being built today, and that it was designed to support four lanes of traffic.

L. R. Welford

LRW/mbg

The first part of the paper discusses the importance of maintaining accurate records of all transactions. It is essential for the company to have a clear and concise record of all financial activities, including sales, purchases, and expenses. This will allow the company to track its performance over time and identify areas for improvement.

In addition, the paper emphasizes the need for regular communication between the company and its stakeholders. This includes providing regular updates to investors, customers, and employees. By keeping everyone informed, the company can build trust and ensure that all parties are working towards the same goals.

The paper also discusses the importance of maintaining a strong relationship with the company's suppliers. This involves negotiating favorable terms and conditions, as well as ensuring that all orders are delivered on time and in full. By doing so, the company can ensure that its supply chain is efficient and cost-effective.

Finally, the paper concludes by emphasizing the importance of maintaining a strong financial position. This involves ensuring that the company has sufficient funds to cover all its obligations, as well as having a clear plan for how to manage its finances in the future. By following these guidelines, the company can ensure that it is well-positioned to succeed in the long run.



# INDUSTRIAL PARKS - IMPACT ON POLICE SERVICES

	TRAFFIC	TYPES		EXCESSIVE SERVICES	
		DAY	NIGHT	YES	NO
WESTWOOD P.D. Rt. 128 2-3 on Rt. 1 (small)	NO PROBLEM (comes off Rt. 95 N & S)	FALSE ALARMS (NOT A PROBLEM)			x
	NO PROBLEM RE: Rt. 1				

SERVICES TO WESTWOOD P.D. ARE MINIMAL

## MANSFIELD P.D. \*

Used to average 2 accidents a day - changed traffic lights - now accidents not a problem. The traffic is phenomenal.

AUTO THEFT - Was a major problem, but after a 4 day stakeout, some subjects from Boston were caught. Now there may be only one a week, if that.

The Mansfield Industrial Park is largest on the east coast. Security Forces are hired by the companies so there are no false alarms, etc. Internal problems are handled by security force - Fortune 500.

x



RECREATION DEPARTMENT REPORT  
ON  
CANNON FORGE DEVELOPMENT

The Recreation Department came up with the following questions and concerns about the Cannon Forge Development:

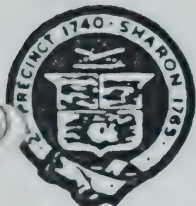
1. What recreation facilities are located on the property?
2. Are any of these facilities available to the residents of Sharon?
3. Will the 8 miles of trails be open to the public?
4. Will the water wells be protected?
5. Why isn't a softball diamond included in the plan for employees?
6. Will this development guarantee the protection of open space and conservation areas?
7. What about a bike trail?
8. What about the proposed swimming pool? (Private?)
9. Will the golf course be private or public?
10. Will elderly transportation be needed?
11. Will it have a people impact on the lake?

My real concern as a citizen is the protection of the land and water at Cannon Forge.

The Community could also use one good 60' Little League baseball diamond in town to be used for tournament play. Maybe Cannon Forge could be the site.







# DEPARTMENT OF PUBLIC WORKS

217 REAR SOUTH MAIN STREET  
P.O. BOX 517  
SHARON, MASSACHUSETTS 02067

TELEPHONES  
D.P.W. 784-5961  
ENG. 784-6769  
BLDG.

D. SCOTT LAURIE  
SUPERINTENDENT

WILLIAM D. DOWDELL, P.E.  
TOWN ENGINEER

ROBERT ROBICHAUD  
BUILDING INSPECTOR

TO: Board of Selectmen

FROM: William D. Dowdell  
Town Engineer

DATE: February 23, 1984

SUBJECT: Cannon Forge

As more information becomes available on the Cannon Forge proposal the project appears to make more sense from a land use standpoint than a conventional subdivision for the disturbed portion of the site. The problem that both Manny and I have with the proposal stems from the fact that it has come to us in bits and pieces rather than as a complete package. We do not have the benefit of a review of the proposal under the Subdivision Rules and Regulations prior to Town Meeting. Adequate review of the developer's reports submitted to date as well as those not yet submitted will hopefully be completed by the Town's consultants (BSC) prior to Town Meeting (April 9, 1984).

The most beneficial features of the Cannon Forge proposal over a conventional subdivision are the off-site improvements that can be required through the use of covenants and restrictions. In return for land being conveyed to the developer the Town is receiving two potential well sites and a number of site specific covenants and restrictions. These covenants and restrictions are presently in the negotiation stage, the developer having made a proposal and Manny and myself having recently prepared a counter-proposal. The issues that are presently being negotiated involve safeguards related to traffic, aquifer protection and other general environmental issues.

Environmentally the Cannon Forge proposal is clearly superior to Quail Ridge Acres. The added benefit of off-site traffic improvement along with the acquisition of two potential well sites are amenities that the Town should seriously weigh against the character change that would come with an office park and multi-family development of this magnitude. Until the verdict is in on the validity of the developer's studies, the choice is one of individual preference in regard to the character of the Town.

WDD/l dw

# ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

VOLUME 54, PART 1, 1961

NUMBER 1, JANUARY 1961

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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# DEPARTMENT OF PUBLIC WORKS

217 REAR SOUTH MAIN STREET  
P.O. BOX 517  
SHARON, MASSACHUSETTS 02067

TELEPHONES  
D.P.W. 784-5961  
ENG. 784-6769  
BLDG.

D. SCOTT LAURIE  
SUPERINTENDENT

WILLIAM D. DOWDELL, P.E.  
TOWN ENGINEER

ROBERT ROBICHAUD  
BUILDING INSPECTOR

TO: Board of Selectmen  
FROM: D. Scott Laurie, Superintendent  
DATE: February 16, 1984  
SUBJECT: Simeone Property - Cannon Forge

## D.P.W. IMPACTS (Estimated)

	<u>Presently Zoned Single Family Housing</u>	<u>Proposed Cannon Forge Rezoning</u>
New Building Units:	225	280 residential units in mixed structures. 1,200,000 sq.ft. office space in mixed structures
Water Usage:	33,750,000 gallons @ 150,000 each annually.	Unknown for office at this time. 11,200,000 gallons residential @ 40,000 gals each annually. <i>Program / ...</i>
Septic Systems:	225 <i>show ...</i>	-0- Treatment plant on site in Foxboro portion.
Miles of accepted roads to be maintained	14	6 maximum; could be less.
Functions:		
Sweeping	Twice a year.	
Line painting	Once a year.	
Street and Traffic signs:	30	12
Catch Basins cleaned once a year:	108	48
Plowing and Sanding:	One (1) additional truck and Driver (\$45,000.). <i>12,000</i>	Existing routes could carry. <i>4 routes. new come into the area</i>





Aside from the additional cost impacts listed above that the 14 miles of new roads in a single residence sub-division would impose upon the D.P.W.; a far greater and incalculable danger potentially exists from the installation of the 225 individual septic systems as they would be adjacent to our existing well and our proven future well sites.

In summary, the Cannon Forge concept, if built as proposed and with certain covenants, would impose considerable less financial and environmental impact for the D.P.W.'s scope of operations and responsibilities.



City can do some

check and water main

can help water main

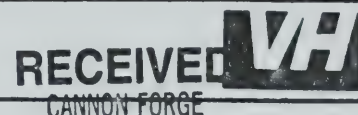
understand - sweeping, maint



---

# MEMORANDUM

---



TO: Mr. Edward Lyons  
Sweco/Cannon Forge  
77 N. Washington Street  
Boston, MA 02108

DATE: March 13, 1984

REF: 0643      MAR 14 1984

FROM: Vanasse/Hangen Associates, Inc. RE: South Main Street  
184 High Street Intersections,  
Boston, MA 02110 Sharon, Massachusetts

---

## INTRODUCTION

Vanasse/Hangen Associates has analyzed the intersections of North Main Street/South Main Street/Depot Street/Billings Street, South Main Street/East Foxboro Street, and South Main Street/East Walpole Street for the 1983 existing base, 1993 no build base, and 1993 full-build conditions in relation to the proposed Cannon Forge Development. The purpose of analyzing the intersections is based on concern raised by the Town of Sharon to see how well the intersections will operate after the development has taken place. All three intersections are scheduled for improvement in the near future.

Overall, all three intersections will operate at acceptable levels of service during 1993 full-build conditions which range from Level of Service "A" to "C". There will be a minimal change in operating conditions from the existing base to 1993 build conditions. The intersections under the proposed improvements will adequately accomodate both development related traffic and any unrelated traffic growth in the area.

1. The first part of the paper is devoted to the

2. The second part of the paper is devoted to the

3. The third part of the paper is devoted to the

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20. The twentieth part of the paper is devoted to the



## INTERSECTIONS - PLANNED IMPROVEMENTS

### 1. North Main Street/South Main Street/Depot Street/Billings Street

Under the scheduled improvement, this unsignalized intersection will become a fully-actuated signalized intersection. There will be one lane approaches on North Main Street and South Main Street and two lanes approaches on Depot Street and Billings Streets. The improvement will also include new pavement markings for crosswalks and stop lines at the intersection. Curbside parking will be allowed on all approaches except South Main Street and Depot Street approaches. In addition, an exclusive pedestrian-actuated phase is provided at this location.

### 2. South Main Street/East Foxboro Street/Gunhouse Street

Under existing conditions, this intersection forms a non-standard four legged intersection. Under the planned improvement, Gunhouse Street will be relocated to form a "T" intersection with East Foxboro Street. East Foxboro Street will intersect with South Main Street as a "T" intersection and will operate as a fully actuated signalized intersection. The approaches for South Main Street will include two lanes on the westbound approach and on the eastbound approach. Although the 18 foot wide eastbound approach can accommodate two relatively narrow lanes allowing a right turn lane into East Foxboro Street, a one lane approach is assumed in this analysis which provides a worst case condition. The approach on East Foxboro Street will be striped for two lanes.



### 3. South Main Street/East Walpole Street

The planned improvement for this intersection included channelization modifications for the East Walpole Street approach, a new flasher unit, curbing and new pavement markings including a crosswalk. This intersection will remain operating as an unsignalized intersection.

### TRAFFIC VOLUME

Turning movement counts were obtained from the Massachusetts Department of Public Works for the three locations. The counts were conducted during October, and November of 1979 as part of the urban systems project. To account for the traffic increase since 1979, an annual traffic growth factor of one percent was applied to these counts to produce the existing and 1993 base traffic networks. The development traffic was then added to the 1993 base to produce the 1993 build conditions.

### ANALYSIS RESULTS

#### 1. Traffic Performance Measures

"Level of Service" is a term which defines the operating conditions which occur on a roadway or intersection when accommodating various traffic volumes. It is a qualitative measure of the effect of a number of operational factors including speed, travel delay, freedom to maneuver and safety. The application of a level of service measurement to a roadway or intersection essentially presents an index of its operational qualities.





In practice, any roadway may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. Level of Service "C", a condition of stable flow, is generally considered desirable for peak or design traffic flow in urban areas. Level of Service "A" is the optimal condition of free flow where roadway operating conditions are at their best. Level of Service "E", on the other hand, represents an unstable flow condition where excessive congestion and delays are prevalent. Often, it is necessary to design for Level of Service "D" conditions due to travel conditions, economic, and environmental considerations.

Efficiency of vehicular movement on rural/suburban roadways is affected by the capabilities and adequacy of associated intersections as well as that of the physical characteristics of the roadway itself. As traffic volumes increase and urban characteristics begin to prevail, the intersections will essentially control the level of service provided by the roadways.

Levels of service for intersection operations may also be categorized. Level of Service "C" for an intersection represents a stable flow, with occasional backups behind turning vehicles. In the case of a signalized intersection at LOS "C", a driver may, on occasion, have to wait through more than one red signal indication. At LOS "D" vehicle delays will be slightly longer than at LOS "C". Traffic will, however, be processed through the intersection at acceptable levels and residual capacity exists. Capacity of the intersection occurs at Level of Service "E" and is characterized by



long backups or queues of vehicles waiting to pass through the intersection. Delays are often substantial and may be several signal cycles in length.

## 2. Evaluation Criteria

### o Signalized Intersections

Levels of service of signalized intersections in the study area were determined by using the critical lane method of analysis. This procedure relates the capacity of an intersection to the lane utilization on each approach. The critical lane volume (CLV) is defined as that volume or combination of volumes of a given street which requires the greatest amount of green time for that street and as a result, produces the greatest utilization of capacity. The CLV for each phase (or street) is summed and the total used as an indication of level of service. Planning application criteria were used as a basis for determining the LOS.<sup>1/</sup> Table 1 summarizes the relationship between level of service, signal phasing, critical lane volume and expected delay range.

<sup>1/</sup> Transportation Research Board, Transportation Research Circular Number 212. Interim Materials on Highway Capacity, Washington, D.C. (January, 1980).





TABLE 1  
LEVEL OF SERVICE CRITERIA FOR  
SIGNALIZED INTERSECTIONS<sup>1/</sup>

LOS	Planning Criteria				
	Maximum Sum of CLV <sup>2/</sup>			Expected Operating Parameters	
	Two Phase	Three Phase	Four+ Phase	Typical V/C Ratio <sup>3/</sup>	Delayed Range Seconds/Vehicle
A	900	855	825	0-0.60	0-16.0
B	1,050	1,000	965	0.61-0.70	16.1-22.0
C	1,200	1,140	1,100	0.71-0.80	22.1-28.0
D	1,350	1,275	1,225	0.81-0.90	28.1-35.0
E	1,500	1,425	1,375	0.91-1.00	35.1-40.0
F	- -Not Applicable- -			1.00 or greater	40.1 or greater

<sup>1/</sup> Transportation Research Board, Transportation Research Circular Number 212. Interim Materials on Highway Capacity, Washington, D.C. (January, 1980).

<sup>2/</sup> CLV - Critical Lane Volume.

<sup>3/</sup> V/C - Volume/Capacity Ratio

### o Unsignalized Intersections

In capacity calculations for an unsignalized intersection or driveway, the assumption is made that the major street traffic is not affected by the minor street movements.<sup>1/</sup> The capacity of the intersection is a function of: the right turns into the major road; the left turns from the major road; through traffic crossing the major road and left turns into the major road; and the number of acceptable gaps in the through traffic streams which allow turning or crossing vehicles to pass through the intersection. The

<sup>1/</sup> Transportation Research Board, Transportation Research Circular Number 212. Interim Materials on Highway Capacity, Washington, D.C. (January, 1980).



critical acceptable gap is defined as "that gap for which an equal number of drivers will accept a shorter gap as will reject a longer gap." Typically, the left turn movement from the minor street onto the major street is found to be the most critical movement, primarily due to having to cross both directions of main stream traffic flow. Based on a gap acceptance function,<sup>1/</sup> the capacity of the minor approach can be determined. The difference between available capacity and existing demand is defined as reserve capacity and is used as the criteria for determining level of service. Table 2 summarizes the relationship between level of service, reserve capacity and expected traffic delay.

TABLE 2  
LEVEL OF SERVICE AND EXPECTED  
DELAY FOR RESERVE CAPACITY RANGES<sup>1/</sup>

Reserve Capacity	Level of Service	Expected Traffic Delay
400 or more	A	Little or no delay
300 to 399	B	Short traffic delays
200 to 299	C	Average traffic delays
100 to 199	D	Long traffic delays
0 to 99	E	Very long traffic delays
Less than 0	E	Failure - extreme congestion
(Any value)	F	Intersection blocked by external causes

<sup>1/</sup> Transportation Research Board, Transportation Research Circular Number 212. Interim Materials on Highway Capacity, Washington, D.C. (January, 1980).

<sup>1/</sup> Transportation Research Board, Special Report 165, Traffic Flow Theory, Washington, D.C., 1975.





### 3. Analysis

The analyses of the intersections were completed under improved conditions. At the current time, it is anticipated that final design will be completed during 1984 and the Town anticipates construction in 1984 and/or 1985. The results of the analysis summarized in Tables 3 and 4 for the existing base condition, 1993 no build condition, and the 1993 full build condition.

Overall, all intersections will operate at acceptable levels of service for both the AM and PM design hour under both no-build and build conditions with the improvements. The development traffic will result in slight changes in level of service and vehicular delays when comparing the 1993 no-build and build conditions at the South Main Street/East Foxboro Street intersection during the PM peak hour and the South Main Street/East Walpole Street intersection.

During the 1993 full build condition, the intersection of North Main Street/South Main Street/Depot Street/Billings Street will continue to operate at acceptable levels: Level of Service "C" for the AM design hour and Level of Service "B" for the PM design hour. The Depot Square intersection will operate at the same levels of service under both the 1993 base and 1993 build conditions. The analysis of this intersection indicated, that although evening volumes are greater than morning volumes, higher operating levels are expected during the PM peak hour. This is due to critical movements on Depot and Billing Streets being lower during the evening than in the morning. As stated earlier, the critical movements control the operating levels of the intersection.



### 3. Analysis

The analyses of the intersections were completed under improved conditions. At the current time, it is anticipated that final design will be completed during 1984 and the Town anticipates construction in 1984 and/or 1985. The results of the analysis summarized in Tables 3 and 4 for the existing base condition, 1993 no build condition, and the 1993 full build condition.

Overall, all intersections will operate at acceptable levels of service for both the AM and PM design hour under both no-build and build conditions with the improvements. The development traffic will result in slight changes in level of service and vehicular delays when comparing the 1993 no-build and build conditions at the South Main Street/East Foxboro Street intersection during the PM peak hour and the South Main Street/East Walpole Street intersection.

During the 1993 full build condition, the intersection of North Main Street/South Main Street/Depot Street/Billings Street will continue to operate at acceptable levels: Level of Service "C" for the AM design hour and Level of Service "B" for the PM design hour. The Depot Square intersection will operate at the same levels of service under both the 1993 base and 1993 build conditions. The analysis of this intersection indicated, that although evening volumes are greater than morning volumes, higher operating levels are expected during the PM peak hour. This is due to critical movements on Depot and Billing Streets being lower during the evening than in the morning. As stated earlier, the critical movements control the operating levels of the intersection.





The other two intersections will continue to operate at acceptable levels of service during both the AM and PM design hour. The South Main Street/East Foxboro Street intersection will operate at Level of Service "A" during the AM peak hour and Level of Service "C" during the evening peak hour under 1993 build conditions. The critical movement (left turn out of East Walpole Street) at the unsignalized intersection of South Main/East Walpole will operate at a Level of Service "B" during the AM peak and Level of Service "C" during the evening peak hour. Other movements (i.e. South Main Street traffic flow) will tend to operate at higher levels of service.



ARTICLE I

To see if the town will vote:

Part 1. To authorize the selectmen to sign, seal and deliver, for and in the name of the town, an option agreement with Salvatore B. Simeone, Maria J. Luongo and Benjamin A. Simeone, Jr., tenants in common, Maria J. Luongo and Salvatore B. Simeone, trustees of Simeone Associates Trust (all of whom are hereinafter referred to as "Simeones") and Cannon Forge Development Co. (hereinafter called "Cannon Forge"), under the terms of which the town would have an option to accept from the Simeones and Cannon Forge, or either of them, a deed conveying to the town three parcels of land: parcel 1, containing 20.7 acres, more or less; parcel 2, containing 1.3 acres, more or less; and parcel 3, containing 12 acres, more or less, shown on a plan entitled "Plan of Proposed Land Transfer Between Cannon Forge Development Company and the Town of Sharon" dated January 30, 1984, and prepared by Norwood Engineering Company, Inc., as well as on a plan entitled "Plan of Land to be Retained by Cannon Forge Development Co. in Sharon and Foxborough, Mass., dated March 30, 1984", prepared by Norwood Engineering Co., Inc., as well as suitable easements giving the town access to the aforesaid parcels, and, in exchange therefor, to execute and





deliver a deed conveying to the Simeones and Cannon Forge (or whichever of them is the grantor of parcels 1, 2 and 3) 25 acres, more or less, of land, shown as Parcel A on the aforesaid plans; and the Simeones would have a reciprocal option; the option agreement and each of the said deeds to contain such restrictions, covenants and other terms as the selectmen shall approve, their execution and delivery of the option agreement and the deed to the Simeones and Cannon Forge (or whichever of them is the grantor of parcels 1, 2 and 3) and their acceptance of the deed from the Simeones and Cannon Forge to be conclusive evidence of their approval.



Part 2.

To amend the Zoning By-Laws to create Planned Residential Development districts as follows, or act in any way relating thereto:

1. Clustered Multifamily Development

Amend Section 4330, Clustered Multifamily Development by deleting the same, consisting of Subsections 4331 through 4338, inclusive, ~~and~~ in its entirety, and by substituting therefor the following Section 4330, consisting of Subsections 4331 through 4342, inclusive:

\*4330. Planned Residential Development (PRD)

4331. Purpose

For the purpose of promoting the more efficient use of land in harmony with its natural features, encouraging the preservation of Open Land for conservation, open space and recreational use, preserving historical and archeological resources, protecting existing or potential municipal water supplies, all in accordance with the general intent of the Zoning By-Laws to protect and promote the health, safety, convenience and general welfare of the inhabitants of the Town of Sharon, any owner or owners of a tract of land having a minimum of 10 acres of land within a Suburban District, or an authorized agent or agents of such owner or owners, may make application to the Board of Appeals for a Special Permit for a Planned Residential Development subject to the provisions of Section 4314 and 6320 herein.

4332. Regulations

a) Except as otherwise indicated herein, any development with the PED shall be subject to all otherwise applicable requirements of this By-Law.

4333. Residential Uses

a) Residential uses within a PRD may include:

- 1) Single family detached dwellings.
- 2) Attached dwellings, provided such structures, their parking and their sewage disposal systems all lie outside the Lake Massapoag drainage basin.

b) Dwellings may be built on individual lots or grouped on land held in common in accordance with 4334.

c) Non-residential uses as listed in Section 4337 shall also be permitted.

4334. Development Density

a) Development shall be permitted at not more than two dwelling<sup>9</sup> units per 40,000 square feet of land area exclusive of water bodies provided that there shall be no more than two bedrooms average per dwelling unit. A studio type unit shall be considered a one bedroom unit.

b) Building Location

- 1) Minimum street setback:

From streets constructed or maintained wholly or in part by state funds under General Laws Chapter 90; forty (40) feet from the street sideline, or, if more restrictive, seventy (70) feet from the street centerline.

From other streets: thirty (30) feet from street sideline, or, if more restrictive, fifty (50) feet from the street centerline.

- 2) Minimum setback from side or rear lot lines:

Residential buildings: twenty (20) feet.

Other buildings: ten (10) feet.

- 3) Minimum separation between unattached buildings on the same lot:

Between buildings used for residential purposes: twenty (20) feet  
Between other buildings ten (10) feet.





4335. Open Land

a) The total area of "Open Land" shall comprise at least 25% of the total area of the PRD.

b) Open Land shall be either:

- 1) conveyed to the Town of Sharon and accepted by it for park, open space, or active indoor and outdoor recreation uses or other municipal use, or
- 2) conveyed to a non-profit organization the principal purpose of which is the conservation and maintenance of open space, or
- 3) conveyed to a corporation or trust owned or to be owned by the owners of lots or residential units within the plan, with the selection of ownership to be approved by the Board of Appeals. If such a corporation or trust is utilized, ownership thereof shall pass with conveyances of the lots or residential units. In any case, where such land is not conveyed to the Town, a restriction enforceable by the Town of Sharon shall be recorded providing that such land shall be maintained as approved in the plan and not be built upon or developed for accessory uses such as parking or roadway, or
- 4) a combination of the above alternatives for separate parcels within a tract of land.

c) Not more than ten (10) per cent of such Open Land shall be devoted to impervious surfaces such as paved areas and structures used for, or as accessory to, active outdoor recreation consistent with the open space uses of such land.

4336. Amenities

a) In keeping with Section 4331 of this By-Law, the applicant shall provide active and passive recreation facilities as part of the plan.

b) The ownership and maintenance of these facilities shall be provided for in accordance with Section 4335 herein.

c) Trails and land set aside for conservation or recreation purposes, shall be sited in a manner so as to form a cohesive system that bears a functional relationship to the population served.

d) Active recreational facilities shall be provided to serve the projected population of the PRD.

e) The inclusion of these facilities as shown on the final approved plan shall be a condition in the Special Permit for a PRD and shall further be secured by a performance bond as part of the guarantee for site improvements for issuance of building permits as described in the Town of Sharon Land Sub-Division Rules and Regulations as most recently amended.

4337. Non-Residential Uses.

a) The primary intent of non-residential uses is to serve the residents of the PRD. Therefore, space allocated for non-residential uses within the PRD shall be limited in accordance with this Section.

b) Permitted non-residential uses within a Planned Residential District comprise the following:

- 1) Indoor and outdoor recreation facilities designed for use of the residents.
- 2) Maintenance, equipment and storage area provided that no portion is located within the Water Resource Protection District or Ground Water District.





Part 2 - Con'd

- 3) Country clubs and golf courses.
- 4) In PRDs having a land area of 100 acres or more, two restaurants provided that the seating capacity of each not exceed fifty (50) seats.
- 5) In PRDs having a land area of 100 acres or more, one each of personal service establishments such as beauty shops, barbershop, newsstand, dry cleaning pickup facility, professional offices such as medical doctors or dentists, attorneys, insurance and real estate, each not to exceed one thousand (1,000) square feet gross floor area.
- 6) One convenience/general store for the entire PRD having a gross floor area not to exceed three thousand (3,000) square feet.
- 7) All uses mandated by Section 3, Chapter 40A, of the Massachusetts General Laws.

4338. Accessory Buildings

Accessory building shall include all detached buildings used for parking and all recreational buildings for use of the residents such as clubhouses, cabanas, stables, and shelters. These are permitted uses and shall be incorporated and identified on the plan

4339. Building Design.

Departure from the visual scale of single-family development shall be minimized by including not more than ten (10) dwelling units in a single structure, each dwelling unit having its own entrance and by limiting building length to not more than two hundred (22) feet. No habitable floor shall be located below finished grade at its entire perimeter or above the second floor.

4340. Buffers

Visual separation from single family residential uses abutting the PRD shall be assured by providing yards of at least fifty (50) feet between any multifamily dwelling or parking lot or structure for five (5) or more vehicles and the boundary of the PRD abutting a single family residential district and through use of outdoor lighting fixtures not higher than fifteen (15) feet .

4341. Parking

Common parking areas, e.g. an area not immediately adjacent to any single unit designed to serve six or more dwelling units may be provided so long as:

- a) No more than twenty (20) spaces are provided in any one parking area.
- b) Two or more parking areas shall be separated from each other by at least twenty (20) feet.
- c) Each parking area shall comply with the requirements of Sections 3113 through and including Section 3117 of this Zoning By-Law.

4342. Application and Review Procedure

a) To provide better communication and to avoid misunderstanding, applicants are encouraged to submit preliminary proposals for informal review prior to formal application. Upon written request, the Board of Appeals shall arrange a meeting for such review, inviting the Board of Appeals, Planning Board, Conservation Commission, Town Engineer, Department of Public Health, Police Department and Fire Department and any other officials deemed appropriate.





Part 2 - Cont'd

b) Applicants for a Special Permit shall file with the Town Clerk nine (9) copies of the following, which shall have been prepared by an interdisciplinary design team including but not limited to a Registered Land Surveyor, a Professional Engineer, and a registered Architect or Landscape Architect:

- 1) A plan of the proposed development endorsed by the Planning Board as conforming to the requirements of a Preliminary Plan as defined by the Land Sub-division Rules and Regulations of the Planning Board and to the intent of those Regulations. Such plans shall also indicate proposed topography and the results of recent deep soil test pits and percolation tests at the site or sites of the leaching area of the required septage treatment facility.
- 2) An Environmental and Community Assessment as required by the ~~State~~ Land Subdivision Rules and Regulations as most recently amended.
- 3) Any additional information necessary at a level of detail commensurate with the scale of the development, as determined by the Board of Appeals.
- 4) A report on the form of organization proposed to own and maintain the open space and common lands, and the substance of any covenants and grants of easements to be imposed upon the use of land and structures.
- 5) A completed copy of an Environmental Notification Form (ENF) the original of which shall have been filed with the Massachusetts Environmental Protection Agency (MEPA) division of the Commonwealth of Massachusetts Executive Office of Environmental Affairs.
- 6) A plan showing the planned sequence of construction of the development and its relationship to the overall Development Plan.
  - a) Copies of these materials shall be transmitted forthwith upon receipt to the Board of Appeals, Planning Board, Conservation Commission, Town Engineer, Department of Public Works, Board of Selectmen, Board of Health, Police Department and Fire Department. Agencies other than the Board of Appeals shall submit reports on the proposal to the Board of Appeals within 35 days of the referral, and the Board of Appeals shall make no decision upon the application until receipt of all such reports or until 35 days have lapsed since date of referral without them."

2. Uses Allowed on Special Permit

Amend Section 2315, Uses Allowed on Special Permit as follows:

- (a) 2315 (a) (3) by deleting the Section 2315 (a) (3) in its entirety and substituting therefor the following Section 2315 (a) (3):

"(3) In Suburban District only single, two family and multifamily dwellings in a Planned Residential Development."

- (b) 2315 (c) (4) by adding the following Section 2315 (c) (4):

"(4) In Suburban Districts only, non-residential uses within a PRD as described in Section 4337 of this By-Law."

1. The first part of the paper discusses the importance of the study and the objectives of the research.

2. The second part of the paper describes the methodology used in the study and the data collection process.

3. The third part of the paper presents the results of the study and discusses the findings.

4. The fourth part of the paper discusses the implications of the study and the conclusions drawn from the research.

5. The fifth part of the paper discusses the limitations of the study and the areas for future research.

6. The sixth part of the paper discusses the contributions of the study to the field of research.

7. The seventh part of the paper discusses the practical applications of the study and the recommendations for practice.

8. The eighth part of the paper discusses the ethical considerations of the study and the measures taken to ensure ethical standards.

9. The ninth part of the paper discusses the acknowledgments and the funding sources of the study.

10. The tenth part of the paper discusses the references and the sources used in the study.

11. The eleventh part of the paper discusses the appendices and the supplementary materials of the study.

12. The twelfth part of the paper discusses the conclusion and the final remarks of the study.

Part 2 - Con'd

3. Clustered Multifamily Development

Amend Section 3143 Clustered Multifamily Development by deleting the words "Clustered Multifamily Development" wherever they appear in Section 3143 and substituting in each case therefor the words "Planned Residential Development (PRD)."

4. Site Plan Approval

Amend Section 6321 Site Plan Approval by adding the following Section 6321 (d):

"(d) In Suburban Districts for Planned Residential Developments."

5. Definitions

Amend Article V Definitions of the Zoning By-Laws as follows:

- (a) By adding the following definitions of "Dwelling, Attached" between the definition labelled "Dwelling" and the definition labelled "Dwelling Unit":

"Dwelling, Attached: A dwelling unit connected to another dwelling unit on one or both sides by a verticle party wall, garage, breezeway or similar structure."

- (b) By deleting the definition of "Open Land" in its entirety and substituting therefor the following:

"Open Land: Areas of a site unoccupied by buildings; unobstructed to the sky by man-made objects; not devoted to streets, driveways, off-street parking or loading; and suitable for recreation, gardens, or household service activities."





To amend

the Zoning By-Law to create OFFICE PARK DISTRICTS as follows, or act in any way relating thereto:

1. District Use Regulations

Amend Article 2300, District Use Regulations, of the Zoning By-Law by adding the following Sections 2340 through 2346 inclusive:

2340. Office Park Districts:

All uses permitted under this Section of the Zoning By-Law shall be contingent upon connection to a municipal or private sewage collection and treatment system of a design approved by such local, state, and federal agencies having jurisdiction over said approvals. In no case shall said system discharge effluent within the Water Supply Setback District or the Water Resource Protection District as defined in this Zoning By-Law.

2341. Permitted Residential Uses:

Nursing home or extended health care facility.

2342. Permitted Community Service Uses:

- (a) Municipal building, religious or educational uses, non-profit civic or religious service organization.
- (b) Post office, telephone exchange provided that there is no service yard or garage.
- (c) Religious or educational purposes on land owned or leased by a public body, religious sect or denomination, or non-profit educational corporation.
- (d) Playground, playfield, tennis courts, swimming pool or like outdoor recreational facilities.

2343. Permitted Business and Commercial Uses.

- (a) Business, financial, professional or government offices.
- (b) Bank with or without drive-up windows.
- (c) Offices and clinics for medical, psychiatric, or other health services for the examination or treatment of persons as outpatients only including laboratories that are part of such offices or clinics.
- (d) Commercial and non-profit radio or television transmission and reception facility provided that no combination of building and antenna or tower is in excess of the maximum building height permitted under this By-Law.
- (e) Services related to the types of businesses permitted in this district such as printing and duplication services, telephone answering services and messenger services.
- (f) Private membership athletic and health club.
- (g) Day nursery, nursery school, or other agency providing day care for children.
- (h) Restaurant or cafeteria within a permitted building, provided there shall be no exterior evidence of same.

2344. The following uses shall be permitted only by Special Permit of the Board of Appeals:

- (a) Motel or hotel provided that the following are compiled with:



Part 3. Cont'd

- (1) Minimum floor area per unit, not including corridors and public floor areas, shall be 240 square feet.
  - (2) No motel or hotel unit floor elevation shall be located below the mean grade level of the land.
  - (3) No more than ten (10) per cent of the public floor area (lobby, function rooms, restaurants) shall be used for accessory commercial uses such as newsstands, barber or beauty shops, vending machines, gift shops, or offices other than those offices necessary to the management of the motel or hotel.
- (b) Single family detached and single family attached housing provided that:
- (1) The parcel of land has a minimum area of ten (10) acres.
  - (2) The parcel of land abuts and has a functional relationship to a Planned Residential Development (PRD) district.
  - (3) With the exception of b.1. above, the proposed development complies with all the requirements for a Planned Residential Development as per Section 4330 of this Zoning By-Law as amended.

2345. Building Location

- (a) Minimum street setback: One hundred (100) feet to the side line or one hundred and fifty (150) feet to the centerline of any street or way, unless such street or way is defined as limited access by the Massachusetts Department of Public Works, in which case any external wall may be located as close as thirty (30) feet to the side line as long as the distance from the wall to the edge of the nearest traveled way is in excess of one hundred and fifty (150) feet and such land which remains unused by virtue of this requirement shall be used only for walks, drives, visitor parking areas, or flagpoles, and all land not so used or improved shall be maintained in grass or landscaping.
- (b) Minimum setback from side or rear lot lines: If boundary of a single, suburban, or general residence district, or an adjoining lot used for residential purposes, or any Town boundary: one hundred (100) feet, half the area and width of which shall be maintained in planting or landscaping sufficient in character and extent to provide a suitable screen between properties. Other lot lines: Thirty (30) feet.
- (c) Minimum separation between unattached buildings on the lot: twenty (20) feet.

2346. Building Height:

- (a) To exceed neither three (3) stories nor forty-five (45) feet.
- (b) Buildings and structures greater than three (3) stories or forty-five (45) feet in height but not more than five (5) stories or sixty-five (65) feet in height may be allowed by Special Permit from the Special Permit Granting Authority provided that said buildings or structures are so designed and located as to avoid visual incongruity, loss of privacy on nearby properties, or excessive shadows.







2. Dimensional Regulations Amend Article 11 Section 2400, Dimensional Regulations, of the Zoning By-Law by adding the following Sections 2480 through 2484, inclusive:

2480. Office Park District Requirements.

2481. Minimum Lot Area: one hundred thousand (100,000) square feet.

2482. Minimum Lot Width: two hundred fifty (250) feet.

2483. Maximum Lot Coverage Exclusive of Parking: twenty-five per cent (25%)

2484. Maximum Floor Area Ratio (FAR): one-fourth (.25).

3. General Regulations Amend Article 111, General Regulations, of the Zoning By-Law by deleting Sections 3100 through 3117, inclusive, therefrom in their entirety, and by substituting therefor the following Sections 3100 through 3117, inclusive:

3100. Off-Street Parking and Loading.

3110. Business and Office Park District Parking Requirements. In Business and Office Park Districts, off-street parking and loading shall be provided to at least the following minimum specifications.

3111. Number of Parking Spaces Required:

The minimum number of parking spaces required shall be as follows:

- (a) For religious and public educational institutions: one parking space per 600 square feet of gross floor area.
- (b) For other places of public assembly, such as for meetings, entertainment, recreation, adult education, service of food or beverages: one parking space per five (5) fixed seats or ten (10) lineal feet of bench, or where no seats or benches are provided, one parking space per twenty (20) square feet of floor area open to public assembly.
- (c) For bowling alleys: two (2) parking spaces per bowling alley.
- (d) For all other permitted office uses: four (4) parking spaces per one thousand (1,000) square feet of gross leasable area.
- (e) For all other permitted commercial uses: five (5) parking spaces per one thousand (1,000) square feet of gross leasable area.
- (f) For residential uses there shall be two (2) parking spaces per dwelling unit.

Requirements for parking spaces shall be interpreted as follows:

- (g) Where the computation of required spaces results in a fractional number, a fraction of one-half or more shall be counted as one.





Part 3. Cont'd

- (h) No existing building use on a lot non-conforming as to parking may be expanded or changed to a use requiring more parking spaces unless provision is made for additional parking spaces at least equal to the difference between the requirements for the proposed enlargement or new use and the present parking requirement.
- (i) Where it can be demonstrated that the combined peak parking needs of all the uses sharing the lot will, because of differences in peak hours or days, be less than required by Subparagraphs 3111 (a)-(e), the number of parking spaces to be provided may be reduced accordingly by Special Permit from the Board of Appeals, but only for as long as this condition exists.

3112. Location of Parking: All parking, including access thereto, which is accessory to uses within the Business and Business Park districts shall be provided within the same district. All required parking shall be provided on the same lot or lots as the principal use or uses to which it is accessory, except that off-street parking whose pedestrian entrance is within a 200 foot walk of the entrance to the business or lots it serves may be counted towards the fulfillment of the minimum parking requirements in the following manner:

- (a) If the parking lot is privately owned, the parking spaces shall be credited to the owner, or to the several users thereof as formally agreed between them and the owner and recorded on the deed to the parking lot, but no such parking lot shall be otherwise used or diminished in size except insofar as the Board of Appeals may find that the lot is no longer required by the users thereof.
- (b) If the parking lot is publicly owned, each lot having business district frontage within a 200 foot walk of any pedestrian entrance to the parking lot shall be credited with a proportion of the parking spaces corresponding to the proportion the private lot's business district frontage bears to the total business district frontage of all lots so situated which do not already meet the requirements for off-street parking.

3113. Design of Parking Spaces and Aisles:

- (a) Each required off-street parking space shall be marked and shall be large enough to contain a rectangle measured not less than nine (9) by eighteen (18) feet for conventional spaces and eight (8) feet by fourteen (14) feet for compact car spaces, except for spaces parallel to the driveway, which shall be at least nine (9) by twenty-five (25) feet, exclusive of drive and maneuvering space.
- (b) One-third (1/3) of the parking spaces provided shall be designed and marked as reserved for compact cars.
- (c) Each required parking space shall have direct access to an aisle or driveway having a minimum width of twenty-four (24) feet in the case of two-way traffic, or the following minimum widths in the case of one way traffic only:
  - (1) Parking angle parallel 30°, 45°, 60°, 90°
  - (2) Minimum width
    - (1 way traffic) 12', 10', 15', 18', 20'
- (d) Handicapped spaces shall be provided according to the latest standards of the Massachusetts Architectural Barriers Board as amended.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical analysis performed.

3. The third part of the document presents the results of the study. It includes a series of tables and graphs that illustrate the findings of the research. The data shows a clear trend of increasing activity over time.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the main findings and provides a final statement on the importance of the research.



3114. Location and Width of Curb Cuts:

- (a) Except for access to loading bays or private residential driveways, there shall be no more than one driveway from the street to a parking lot for the first one hundred (11) feet of lot frontage, nor more than one (1) additional driveway for each additional one hundred (11) feet of frontage.
- (b) Driveways intersecting the street shall be no less than sixty-five (65) feet on center.
- (c) No curb cut shall be less than twelve (12) feet nor more than thirty (30) feet in width.

3115. Requirements for Off-Street Loading

- (a) In the Business A district there shall be at least one loading bay for any building containing more than one thousand (1,000) square feet of gross leasable business floor area.
- (b) In the Office Park and Business B district there shall be at least one loading bay for any building containing more than 10,000 but less than 50,000 square feet of gross leasable floor area, and at least two loading bays for any building containing 50,000 square feet or more of gross leasable floor area.
- (c) No loading bay shall be less than twelve (12) feet by fifty (50) feet for food stores, nor less than twelve (12) feet by thirty (30) feet for any other business, nor provide less than fourteen (14) feet of vertical clearance.
- (d) The loading bay shall be so laid out as to minimize parking maneuvers within a street, way or parking aisle.

3116. Maintenance of Parking and Loading Areas: All accessory driveways, parking and loading areas shall be graded, surfaced with a dust-free material and drained, all to the satisfaction of the Town Engineer and to the extent necessary to prevent nuisance of dust, erosion, or excessive water flow across public ways or the property of others.

3117. Required Landscaping:

- (a) No parking or loading shall be permitted within ten (10) feet of any street or way.
- (b) Any parking or loading within a required yard abutting a residential district, except for accessory parking on a lot used solely for residence, shall be screened from such district by a strip at least four (4) feet wide, densely planted with shrubs or trees which are at least four (4) feet high at the time of planting and which are of a type that may be expected to form a year-round dense screen at least six (6) feet high within three (3) years, or by an opaque wall, barrier, or uniform fence at least five (5) feet high, but not more than seven (7) feet above finished grade. Such screening shall be maintained in good condition at all times.
- (c) The total landscaped area maintained in lawns, woodchipped areas or ornamental planting shall not equal less than thirty (30) per cent of the total lot area. All areas not built over, paved or landscaped shall be maintained in natural vegetation. Where usable open space is required, it shall count in its entirety as part of the total landscaped area, even if partially paved for recreational uses as permitted by Subparagraph 4221 (c).

4. Establishment of Districts Amend Section 2110, Establishment of Districts, by adding the words "Office Park District" thereto.



Part 3. Cont'd

5. Prohibited Activities Amend Article 3324 (b), Prohibited Activities, as follows:

after the word 'premises' delete the word 'or' and insert the following:

"except for purposes of creation of water retention ponds, aquifer recharge ponds, or conservation related projects and".

6. Industrial District Amend Section 4120, Industrial District, by deleting the words "Industrial District" therefrom and substituting therefor the words "Business, Office Park, and Industrial Districts".
7. Water Resource Protection District Amend Section 4533, Water Resource Protection District, by adding the words: "In residential zones" before the word "impervious" in the first sentence, and by adding the following as a second paragraph of Section 4533:

"in non-residential zones, surface water runoff and aquifer recharge provisions shall be made so that no less than eighty-five percent (85%) of the average annual on-site recharge, calculated based on an equivalent area of land covered by natural vegetation, shall be maintained."

8. Definitions Amend Article V Definitions by adding the following definition of Floor Area Ratio between the definition of "Floor Area, Habitable" and the definition of "Garage, Group".

"Floor Area Ratio (FAR): The gross floor area of all buildings on a lot divided by the lot area.

Example: 
$$FAR = \frac{\text{Total Building Floor Areas}}{\text{Total Lot Area}}$$

$$FAR = .25 \quad .25 = \frac{100,000 \text{ s.f. Building Floor Areas}}{400,000 \text{ s.f. lot}}$$

9. Site Plan Approval Amend Section 6321 Site Plan Approval by adding the following Section 6321 (d):

6321. (d) In Office Park District.







Part 4.

To amend the Town's Zoning By-Law by amending the Zoning Map by deleting certain areas from the Single Residence District A and Rural-1 District and substituting in place thereof a Business B District, an Office Park District and a Suburban District, all as shown on the map entitled "Zoning Proposals, dated January 25, 1984.

Part 5.

To amend Article II, Section 2120, of the Town Zoning By-law by deleting date "March 1983", and by substituting in place thereof the date of a map showing the boundaries of the districts and any changes in the existing districts voted at this meeting, and by adopting as the Zoning Map the map showing such districts and changes, except that any districts subject to the Attorney General's approval will be so identified.



Sharon Advocate

Thursday, March 22, 1984

## Letter to the Editor

Dear Editor:

Many letters in these pages in recent weeks seems to argue that most of us moved to Sharon to enjoy the gravel pit behind Shaw's and a bankrupt school system. Heaven forbid that such bucolic simplicities be compromised by a commercial tax base.

I too was attracted to Sharon by its greenery. I hoped that after me all influx would stop, that not another tree would be cut. However, the reality is that few towns in this Commonwealth are able to make it without some industrial or commercial tax revenue. How do we accommodate to reality with minimum damage to our dreams? Intelligent people try to do just that, and many towns have done so.

Sudbury still looks as rustic and Concord as picturesque as when I was a kid. Yet in Sudbury, behind a screen of woodland, stands the Sperry Research Center, soon to be replaced by a branch of Raytheon. Concord, with proper landscaping, houses not only the rude bridge where the shot was fired but also Sentry Insurance, GenRad, Environmental Research Tech, and Nuclear Metals, Inc.

Their residential charm is unmarred and their property values

are higher than ever. In Sudbury, with a population roughly equal to Sharon's, houses go for \$180,000 to \$400,000 with a median of about \$250,000. The most recent price for a one-size vacant lot was \$110,000. Concord's population is about 17,000. Homes there range from about \$90,000 to \$400,000 with not much at the bottom end; about 50% are between \$150,000 and \$200,000 and another 30% are higher. A Concord realtor told me that far from depressing values, SentryGen-Rad etc. have boosted them. So I find it hard to believe that the modest office park proposed by Messrs. Lyons and Wluka will do any harm to values in Sharon.

We are told that South Main Street will become clogged like the Central Artery in rush hour. I don't believe that either. After all, South Main Street is already a main route to the Foxboro Company, and has been for years. Yet if the Foxboro Company were being built today, I am sure the diehards on the barricades would raise the same hysterical predictions. I wish it were a few miles closer, paying some of its taxes on this side.

They tell us that the sewer system and treatment facility promised by the developers will poison the wells, but that 230 septic tanks on conventional house

lots, the alternative to Cannon Forge, will not. They forget that Lake Massapoag was polluted not by a treatment facility but by house lots. If our washing machines dump phosphates into the lake, will they not do so into wells.

But the bottom line is simple arithmetic. We cannot say no to our last chance at commercial revenues, and at the same time keep voting 2½. The equation doesn't balance. Our population has grown in the past 15 years, but the police and fire depart-

ments have not. There are streets on which the lack of sidewalks have become a hazard to children, but we cannot afford them. Our kids do their school assignments in the Walpole library because our high-school library and our town library are inadequate. Our textbooks are literally older than the children using them. The number of kids in a classroom has crept up every year, from 21 to 22 to 26 or 27. And if the conventional house lots that are the alternative to Cannon Forge put another 250 kids into our system we will have to reopen the Intermediate School and take the asbestos out of it — something our nickel-and-dime budget cannot handle.

Fifteen years ago Sharon was famous for its schools. Their decline has become the single greatest threat to our property values. Nothing damages the quality of life so much as lack of money.

Myron Kaufmann





7 April 1984

Town Meeting 4/9/84

TO: The Citizens to Preserve Sharon

FROM: A Thinking Sharonite Who favors Cannon Forge

During the past few months, I have followed with much interest your public comments, whenever and wherever they have appeared in the media, regarding your opposition to the re-zoning of the former Simeone property -- re-zoning that would result in the creation of Cannon Forge. I have likewise followed, with similar interest, the public media explanations set forth by the Cannon Forge development Co., concerning their proposal for a mixed-use development consisting of residential condominiums, office space (maximum height of 3 floors, with the exception of one 5 floor building,) and open space/conservation land. (No industrial buildings or warehouses of any kind.)

However, as the months became weeks and the weeks became just a matter of days before the 9 April 1984 Sharon Town Meeting --- the meeting at which Sharonites will decide whether Cannon Forge will be or will not be --- I determined that I was not enough informed to make what I hoped would be an intelligent decision on the development proposal. So on Tuesday evening, 3 April, from 7:30 till 11:00, my husband and I attended an open-to-the public forum at which, as the flyer stated, both your group and the Cannon Forge developers would be showing slides and making presentations, presumably to better inform interested, concerned Sharonites of the pros and cons of the proposal.

Both you and Cannon Forge made excellent presentations. It became quite apparent, as the evening progressed, that you both had spent many hours --- probably days or even weeks --- researching your respective facts and presenting them carefully, concisely, thoroughly and patiently to your audience. And I do mean all of most sincerely. The question and answer period that followed was also most informative and enlightening. It was also very emotional. Most Sharonites care very deeply about Sharon. We all want what is best for our town, ourselves and our children.

I learned that night that there are three primary areas of disagreement separating the Citizens to Preserve Sharon from the Cannon Forge Developers and The Thinking Sharonites who Favor Cannon Forge.

In addition to the three areas of disagreement, there is one irrefutable fact that is agreed to by all and was never in dispute; The 620 acres of land in question are now and have been, for as far back as any of us can remember, zoned for tract or single-family housing. Even if the Cannon Forge proposal does not pass at the 9 April town meeting, there ultimately will be tract of single-family housing on those 620 acres. The Cannon Forge developers have said that if their proposal is not voted in at town meeting, they will build tract housing there. I do not in any way interpret this last statement to be a threat, though I unfortunately learned that evening that many of you apparently and mistakenly infer it to be so. Rather, it is a simple statement of fact. Anyone who owns that parcel of land is free to build housing on it if they so wish. To reiterate: It is their wish; it is not their threat.

Contrary to the blatant and inexcusable misinformation in the Boston Globe editorial (5 April 1984, pg. 22) on Cannon Forge, the towns of Sharon and Foxboro have had an outside, independent evaluation made of the Cannon Forge land-use proposal. The fact that the evaluation "has not assuaged those who oppose Cannon Forge" does not, by any stretch of anyone's imagination, detract one iota from its credibility or from complete and total adherence to the principle of independence. Dissatisfaction with results does not render them non-existent. The Metropolitan Area Planning Council (MAPC), "Serving 101 Cities and Towns in Metropolitan Boston", was hired by our town



officials to study the pros and cons of the Cannon Forge proposal. The results of their studies are contained in a 14-page evaluation, entitled: "Analysis of Land Use Alternatives in the Cannon Forge Area of Sharon/Foxborough". An abundance of copies of this analysis were available at the Sunday evening presentation and have been readily available for the taking at the Sharon Public Library for quite some time.

As pertains to one of the primary areas of disagreement: Traffic Impact. The MAPC summarized that "...congestion will be handled by traffic improvements as outlined by the developer. Under the conventional subdivision (tract housing, which will be built if Cannon Forge is not), these improvements will probably have to be provided at public expense, if at all." Your contention that Cannon Forge will create horrendous and insurmountable traffic problems, bordering on disaster to the quality of life in Sharon, is just that --- a contention. An assumption. And a grossly inaccurate one. If Cannon Forge is not built, tract housing will be built. And the consequences of that would lower the quality of life, because tax revenues that are sorely needed to improve the extremely deteriorated quality of our police and fire departments, our school system and a multitude of other necessary and desirable town facilities and services would have to be spent not only on traffic improvements, but also on such things as educating the vastly greater number of children residing in the tract housing than in Cannon Forge (see MAPC Analysis, pg. 5.)

In reference to the second primary area of disagreement: The Water Supply. The MAPC evaluation/analysis clearly states that ".... the water supplies will be better protected by a sewer system (which, without question, would be provided by Cannon Forge) rather than individual on-site septic systems (there is no question that the tract housing that would be built if Cannon Forge is not, would have septic systems.)" Your contention/assumption that Cannon Forge will result in a polluted water supply is apparently one of the many manifestations of your "fear of Cannon Forge," which is how you assertively and forthrightly described your state of mind at the 1 April meeting. Without a doubt, your contention of a polluted water supply is not based on fact. The fact, and I will state it again, is that Cannon Forge would protect the water supply on the 620 acres. There is no need for fear.

And, regarding the third primary area of disagreement: Property Tax Revenues and the Quality of Life. Probably the major reason that any basically residential community ultimately approves the development of commercial property on land within its borders is because commercial property generates tax dollars and less dollar outlay than does residential property on the same land. And the quality of life of a community --- which you state is one of your most important, if not the most important, concerns --- is inextricably related to tax revenues. As Sharon's own Myron Kaufmann put it, ever so succinctly and eloquently, in his 22 March 1984 Letter-to-the-Editor of the Sharon Advocate: "Nothing damages the quality of life so much as lack of money." If and when the citizens of a community finally force themselves to recognize this reality is when they approve the development of commercial real estate as a means of preserving their community and the quality of life of themselves and their children.

Concord, Lincoln, Acton and Sudbury are only some communities that have embraced land developments such as Cannon Forge --- developments of office-space and cluster-housing that allow hundred of acres of open space remaining for recreation and conservation uses. No doubt the citizens of the above-mentioned communities had reservations similar to yours before they approved commercial development for specified land areas within their borders. I would be very much surprised if they did not have reservations.





We all are apprehensive of the unknown. But we must also be risk-takers when we ascertain, after careful consideration, that the benefits to be derived from taking a risk out-weigh the possible side-effects. I, for one, surmise that the citizens of the foregoing-named towns are at least as intelligent and wise as we Sharonites. Or do we believe that you have more wisdom than they, as well as the Thinking Sharonites Who Favor Cannon Forge?

To be sure, there is a distinct, and at first glance, alarming discrepancy between your amount of \$1.26 per sq. ft. in tax revenues that will be generated by the development of office space in Cannon Forge, and the amount of \$3.50 per sq. ft. which is the development company estimate of tax revenue that will be generated by the same office space. A logical explanation for this discrepancy no doubt exists, but exactly what it is has eluded both you and the developers for quite some time. The two of you are at a stand-off on this point of disagreement. However, the explanation need not be known. An intelligent, informed decision on whether Cannon Forge should or should not be made in its absence. Whether the amount is \$1.26 or \$3.50 or somewhere in between is quite irrelevant. What is germane is that 1.2 million sq. feet of office space in Cannon Forge will produce considerably more --- vastly greater --- tax dollars than an equal amount of square feet of tract housing. This fact is not debatable. For you to take upon yourselves the liberty of comparing Wellesley Office Park figures of \$1.26 per sq. ft. to the Cannon Forge figures of \$3.50 is like comparing oranges and orangutans. The choice we must make at town meeting is between Cannon Forge and tract housing. It is not between Cannon Forge and Wellesley Office Park.

Cannon Forge passed 2 April's non-binding referendum by 63 votes. In order to pass at town meeting, it must be by a two-thirds majority. I have every confidence that this will come to pass and that Cannon Forge will become a reality. My confidence is based upon my certainty that all Sharonites, not just you, The Citizens to Preserve Sharon, wish to do whatever must be done to preserve what is good about Sharon. And do away with what is bad. However, I do not believe that any Sharonite, including you, The Citizens to Preserve Sharon, wish to preserve police and fire departments that are reprehensibly and dangerously under-staffed, under-equipped and even under-housed. No Sharonite wishes to preserve streets with no sidewalks which are a hazard to our schoolchildren, more and more of whom must walk to school because every year there are less and less tax dollars to pay for school busing. Nor are there any Sharonites who wish to preserve a school system which, because it is seriously lacking in funds, is also under-staffed and poorly housed, cannot afford to purchase up-dated textbooks or provide really useful libraries, and overall is providing our schoolchildren, from elementary through high school with inferior educations. I feel certain that no Sharonite wishes to preserve a quality of life that is gradually, but unequivocally deteriorating daily as we live it.

On 2 April, a small majority of Sharonites cast their votes as Thinking Sharonites Who Favor Cannon Forge. On 9 April I believe, with all my heart, that all Sharonites who care very deeply about Sharon and want what is best for our town, ourselves and our children, will vote unanimously as Thinking Citizens Who Favor Cannon Forge to Preserve Sharon.

Loretta K. Adler  
22 EAtle Dr., Sharon



# Metropolitan Area Planning Council

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*Serving 101 Cities & Towns in Metropolitan Boston*

AN ANALYSIS OF  
LAND USE ALTERNATIVES  
IN THE  
CANNON FORGE AREA  
OF SHARON/FOXBOROUGH



## INTRODUCTION

The Metropolitan Area Planning Council has been asked by the towns of Sharon and Foxborough to assist them in the evaluation of the Cannon Forge land use proposal. The proposal, covering a land area of 620 acres of which half is in Sharon and half in Foxborough, is subregional in nature with coordination needed because of the magnitude of the project.

The proposal is a mixed-use development with approximately 1.2 million square feet of office development, 860 residential condominiums, recreational amenities and a 100,000 square foot expansion of an existing shopping center. The alternative to the proposal is approximately 470 detached single-family residences on one to one and one-half acre lots. No-build is not an alternative as the developer owns all the land and a conventional-type subdivision is permitted by right under existing zoning regulations. He states that he will build the single-family units if the mixed-use concept is not acceptable to the communities.

The development impacts of such a large-scale project are of primary concern to the communities. Although the project is to be phased over a number of years, the marketability, traffic impacts, financial aspects, environmental impacts and quality of life changes of the proposed development are key issues which the local governments and citizens alike are concerned with. The role of MAPC is to help evaluate the overall proposal and look at the alternatives in light of their potential impacts on the communities. Since Foxborough is at a preliminary stage and Sharon is at an advanced stage in terms of evaluating the development, the concerns of Foxborough as reported by the Simeone Liaison Committee will be the focus of this analysis. Cooperation between the towns and the developer is of utmost importance to accommodate the needs and address the concerns of everyone involved in the development process.

The concerns as addressed in this analysis are as follows:

- o The marketability of residential development
- o The marketability of office development
- o The fiscal impact of development alternatives
- o The traffic impacts of development alternatives
- o The Simeone Liaison Committee report as it relates to environmental and other concerns about the proposal
- o Quality of life changes in the communities

## AN ANALYSIS OF MIXED USE

Mixed use developments are becoming more acceptable in communities for a variety of reasons. They generally allow for a more economical use of the site than a conventional subdivision, which could not possibly cover the entire area due to the unsuitability for development of some parcels. They are also more environmentally sound forms of site design in that they concentrate the dwelling units on the most buildable parts of the site and preserve natural drainage systems, open space, and other natural features that help control stormwater runoff and soil erosion.



There is opposition to such development however. Local governments and citizens' groups are wary of the inherent flexibility of these planned developments. They are opposed to zoning which gives more leeway to the developer, believing it better to approve a given number of units of a specific type of development than to chance the possible consequences of the unknown. Local governments often see their economic interests best served by excluding new development. Economic motives (government costs and property tax rates) are a major cause of opposition. Towns exclude new residential development (which represents an economic loss) while trying to attract new industry (representing an economic gain). A mixed-use development can meet the housing needs of the community and the fiscal needs as well. Other communities have successfully employed this type of development strategy such as Duxbury which has created a protective by-law for guiding its future physical development as related to the needs and goals of the residents. Three primary goals have been established; 1) maintaining the town's residential and rural character, 2) protecting its ecological systems, 3) maintaining a sound fiscal balance. Conservation of open space and safer traffic patterns are corollary goals which complement the major goals. Planned development and residential cluster development have been addressed in the protective by-law and are regarded as means of enhancing the overall needs and goals of the town. The fiscal considerations of new development as reported in the 1973 Duxbury Comprehensive Master Plan Statement is included in the appendix of this report.

## OVERVIEW

At the present time, the parcel of land to be developed is largely vacant and unused. Gavins Pond has great potential but stripping in the past has reduced the area's aesthetic value leaving behind an unpleasant morass of vacant space in the communities. Economics will prevent the continued underutilization of this land in the near future. As it stands now, the absence of vegetation and the shallow depth to the ground water table increase the level of contaminants into the groundwater system. The area needs to be brought back up to standards and begin meeting the needs of both growing communities.

Since no-build is not a realistic alternative, the fact is that the land will be developed in the near future. The type of development and rate at which that development occurs is the primary consideration here. Under the existing zoning regulations, the developer is empowered to build conventional single-family homes on the site. With a rezoning of the area to a planned development district, the developer would be able to build a mix of office-retail uses and condominium units on the site.

As the land is now zoned in Sharon, approximately 234 single family homes could be built with an expected population increase of 748 persons (3.2 people/unit). Sharon's expected population increase for Cannon Forge is 588 persons (2.1 people/unit). In Foxborough, approximately 270 single family homes could be built with an expected population increase of 864 persons (3.2 people/unit). Foxborough expected population increase for Cannon Forge is 1218 persons (2.1 people/unit). The rate at which the development would occur is a more difficult issue. Although the population increase would probably occur at a slower rate with traditional single-family residences, this is not a certainty. More positive zoning controls such as Sharon's phasing

bylaw and development schedule are needed to ensure that quality development occurs in areas which are best suitable for it.

The marketability of residential development in the towns must also be addressed. This can be done by analyzing demographic information as it relates to population and housing characteristics of the area. The following table reveals the projected population and rate of change for the towns in the Cannon Forge area.

<u>Community</u>	<u>1970</u>	<u>1980</u>	<u>% Change</u>	<u>1990</u>	<u>% Change</u>	<u>2000</u>	<u>% Change</u>
Foxborough	14,218	14,148	-0.5	19,600	+38.5	20,800	+6.1
Sharon	12,367	13,601	+10.0	16,200	+19.1	16,800	+3.7
Canton	17,100	18,182	+6.3	18,200	+ 0.1	18,200	0.0
Norfolk	4,656	6,363	+36.7	8,500	+33.6	9,000	+5.9
Norwood	30,815	29,711	-3.6	29,700	0.0	29,700	0.0
Stoughton	23,459	26,710	+13.9	29,200	+ 9.3	29,700	+1.7
Walpole	18,149	18,859	+3.9	21,000	+11.9	21,600	+2.4
Wrentham	7,315	7,580	+3.6	9,500	+25.3	9,900	+4.2

Source: Regional Decline or Revival: An Interim Population Forecast for the Boston Metropolitan Area 1980-2010, Metropolitan Area Planning Council May, 1982.

From the table, Foxborough will experience the highest rate of growth in the area over the next ten years with a 38.5 percent growth rate, and Sharon can expect a 19.1 percent growth rate. This will continue at a slower rate through the year 2000 for the towns themselves as well as the area in general and housing demand will keep pace with this growth. Dwelling unit changes between 1970 and 1980 were as follows:

	<u>1970</u>	<u>1980</u>	<u>Change/%</u>
Foxborough	3881	4840	+959/+24.7
Sharon	3470	4423	+953/+27.5



This reveals that residential development for the two towns were very similar over the ten-year period. Population growth in Foxborough, however, will create added demand for housing in the future. Because of this, the town should be looking at ways to mitigate potential impacts associated with development pressures. Phased growth, such as Sharon's residential development ceiling of 100 units/year, and planned developments, such as those allowed in Duxbury under their protective by-law, are two ways in which this can be done. Based on this analysis, the marketability of residential development will not be a problem for either town.

#### THE MARKETABILITY OF OFFICE DEVELOPMENT

The six communities of Braintree, Canton, Dedham, Norwood, Quincy and Westwood are analyzed to represent the southern suburbs for comparison of first-class office buildings. In 1983, there was a total of 3.6 million square feet of office space in 34 buildings. This represents an occupancy level of approximately 84 percent with rents ranging from \$12.50 to \$21 per square foot and expected to range from \$16 to \$21 by 1986.

According to Spaulding and Slye's January, 1984 Office Market Survey as it relates to these southern suburbs, Westwood has a 7 percent vacancy rate (7300 sf) in one building, Dedham a 10 percent (34,254 sf) in four buildings, Braintree a 23 percent (116,700 sf) in eight buildings, and Quincy a 15 percent (331,000 sf) in ten buildings. This represents a Route 128-southern suburb total of 489,254 square feet of first-class vacant office space.

For 1984-86, about 622,250 square feet of first-class office space in five buildings is being built in these southern suburbs. This may seem like an abundance of available space but, in 1983 alone, 331,100 square feet of office space was leased in these communities nearly double the 1982 rate of 184,500 square feet in a single year. Neither Sharon nor Foxborough have any vacant space in first-class office buildings. Based on this, it appears that office development would be highly marketable in this area.

#### FISCAL IMPACT OF DEVELOPMENT

Given that development of the property will occur, the type of development will be the main factor in determining the impacts of the development on the communities. As school costs capture about two-thirds of the local government revenues in most suburbs, the number of school children associated with a new development will create the biggest drain on the community. Large non-residential uses such as an office development or shopping center generate no children and do not represent an educational cost to the community. Residential development does generate children and, depending on the housing type, represents a considerable cost to the community.

The following table identifies the number of school children likely to be living in various types of housing.

TABLE 1: NUMBER OF PUPILS PER UNIT, BY BEDROOMS

Type of Dwelling	Number of Bedrooms	Number of Pupils Per Unit	
		Rutgers Study	Range of Other Studies <sup>1</sup>
High-Rise Apartments	0 (Studio)	.00	--
	1	.01	.05
	2	.18	.13
	3	--	.32
Garden Apartments	1	.05	.01 - .10
	2	.34	.23 - .42
	3	--	.84 - 1.03
Townhouses	2	.22	.26
	3	.67	.44 - .94
	4	1.03	.90 - 2.10
Single-Family Homes	2	--	.20
	3	.63	.50 - 1.40
	4	1.29	1.63 - 2.02
	5	--	2.19 - 2.63
	6	--	- 2.60

#### FOOTNOTES

1. Illinois School Consulting Service, reported in Michael Levin, "Cost-Revenue Impact Analysis: State of the Art", Urban Land, June, 1975; studies by Robert Burchell, Barton-Aschman Associates, Paul Holley, and Monmouth County, N.J. Planning Board summarized in Rutgers Study.

SOURCE: Massachusetts Department of Community Affairs, "Evaluating Development Impact"

Tables 2A and 2B represent a comparison of Cannon Forge in Sharon/Foxborough with a conventional subdivision based on certain assumptions as outline here. The average assessment for condominiums in Foxborough is assumed to be the same as that for Sharon (i.e., \$120,000) in Table 2A. The average tax revenue is based on \$23.50/\$1000 in Sharon and \$23.40/\$1000 in Foxborough. Gross assessed value for single-family homes in Foxborough is assumed to be the same as that for Sharon (i.e., \$90,084) using Barefoot Hill Road data. The residential income can thus be compared between the Cannon Forge development and the conventional subdivision allowed under present zoning conditions.



Table 2A

Condominium Income

	<u>Sharon</u>	<u>Foxborough</u>
1. Projected # Homes	280	580
2. Average Assessment	\$ 120,000	\$ 120,000
3. Average Tax Revenue	2,820	2,808
4. Gross Assessment	33,600,000	69,600,000
5. Total Revenues	\$ 789,600	\$ 1,628,640

Table 2B

Conventional Subdivision Income

	<u>Sharon</u>	<u>Foxborough</u>
1. Number of single-family homes	234	270
2. Average Assessment	\$ 90,084	\$ 90,084
3. Average Tax Revenue	2,117	2,108
4. Gross Assessed Value	21,079,700	24,322,680
5. Total Revenues	\$ 495,372	\$ 569,150

Tables 3A and 3B compare education cost/revenue figures of each town for condominiums proposed for Cannon Forge and for a conventional subdivision based on the following assumptions. The figure used for children generated per unit is .25 for condominiums and 1 for a conventional subdivision. MAPC feels these are conservative figures and provide an accurate base for comparison. Unit contribution figures for education are based on the average tax revenues from Tables 2A and 2B (line 3) multiplied by the school allocation for each town (Sharon's school allocation is 60%, Foxborough's is 70%). The education cost/pupil is based on information from the 1982 Sharon Town Report (\$5,341,021.26 ÷ 2876) and the 1982 Foxborough Town Report (\$5,320,632.88 ÷ 2848). The educational net cost/surplus can then be compared for Cannon Forge and a conventional subdivision.

Table 3A

Education Cost/Revenue - Condominiums

	<u>Sharon</u>	<u>Foxborough</u>
1. Children Generated (.25/unit)	70	145
2. Per Unit Contribution-Education	\$ 1,692	\$ 1,966
3. Total Contribution-Education	473,760	1,140,280
4. Education Cost/Pupil	1,857	1,868
5. Education Cost-Total (1X4)	129,990	270,860
6. Education-Net Cost/Surplus	343,770	869,420

Table 3B Education Cost/Revenue - Conventional Subdivision

	<u>Sharon</u>	<u>Foxborough</u>
1. Children Generated (1 unit)	234	270
2. Per Unit Contribution-Education	\$ 1,270	\$ 1,476
3. Total Contribution-Education	297,180	398,520
4. Education cost/pupil	1,857	1,868
5. Education cost-total (1X4)	434,538	504,360
6. Education-net cost/surplus	(137,358)	(105,840)

Table 4 provides information on gross revenues associated with the Cannon Forge development for each town. The retail revenues are based on existing Sharon Shopping Center taxes. Office park revenues for Sharon are based on an 800,000 square foot office park assessed at \$120,000,000 (\$150/s.f.) multiplied by a tax rate of \$23.50/\$1000 valuation; revenues for Foxborough are based on a 400,000 square foot office building assessed at \$60,000,000 (using Sharon's figure of \$150/s.f.) multiplied by a tax rate of \$23.40/\$1000 valuation.

Table 4 Gross Revenues - Cannon Forge

	<u>Sharon</u>	<u>Foxborough</u>
1. Residential Revenues (Table 2A)	\$ 789,600	\$1,628,640
2. Retail Revenues	87,000	-
3. Office Park Revenues	2,820,000	1,404,000
4. Total Cannon Forge Revenues	3,696,600	3,032,640

Tables 5A and 5B compare net revenues generated by the Cannon Forge mixed-use development and a conventional subdivision. Residential non-education costs are based on data generated by using the Computer Program Assumptions of Philip B. Herr Associates for Sharon and adjusting the non-school allocation to 30 percent for Foxborough. MAPC chose the data because it was considered more appropriate for the analysis. The Cannon Forge total net revenues take into consideration the revenues generated from the condominiums, office and retail uses and reflect the lower educational costs associated with these types of development. The conventional subdivision revenues are based on residential development alone and reflect the higher educational costs associated with single-family homes based on the conservative estimate of 1 child/home.

Table 5A

CANNON FORGE

Annual Revenues at Full Build-Out

	<u>Sharon</u>	<u>Foxborough</u>
1. Residential Costs-education	\$ 129,990	\$ 270,860
2. Residential Costs-non-education	241,990 <sup>(a)</sup>	375,950 <sup>(b)</sup>
3. Residential Costs-total	371,980	646,810
4. Residential Revenue-total	789,600	1,628,640
5. Residential Revenue-net	417,620	981,830
6. Office/Retail Costs <sup>(c)</sup>	726,750	351,000
7. Office/Retail Revenue	2,907,000	1,404,000
8. Office/Retail - net	2,180,250	1,053,000
9. Cannon Forge-net total revenue	2,597,870	2,034,830

Table 5B

Conventional Subdivision

Annual Revenues at Full Build-Out

	<u>Sharon</u>	<u>Foxborough</u>
1. Cost to Community-education	\$ 434,538	\$ 504,360
2. Cost to Community-non-education	202,235 <sup>(a)</sup>	175,011 <sup>(b)</sup>
3. Cost to Community-total	636,773	679,371
4. Revenue from Development	495,378	569,160
5. Net Revenue	(141,395)	(110,211)

a. Based on Philip B. Herr Associates' computer program assumptions of \$864.25/home.

b. Based on Philip B. Herr Associates' computer program assumptions and adjusted to Foxborough's non-school allocation of 30 percent resulting in \$648.19/home.

c. Assumes costs = 25% of revenues.



## TRAFFIC IMPACTS

Traffic impacts associated with a conventional subdivision have been compared to those associated with the Cannon Forge mixed-use development in this analysis. Based on Quick-Response Urban Travel Estimation Techniques and Transferable Parameters (Transportation Research Board, (TRB) Washington, D.C., 1978), a daily rate of 9.3 trips/day has been used as the average vehicle trip rate associated with single-family residential developments of 1 dwelling unit/acre. Accordingly, it is estimated that a 470 conventional unit residential community will generate, on an average weekday at full development, approximately 4370 new vehicle-trips daily.

Vanasse/Hangen Associates has used the Institute of Transportation Engineers generation rate of 5.2 trips/unit for the Cannon Forge condominiums, which correlates fairly well with the TRB trip generation for similar developments. The reason for the difference in rates used for each housing type is that conventional single-family residences are bigger generators of trips than condominiums. Accordingly, it is estimated that the proposed 860-unit residential condominiums will generate, on an average weekday at full development, approximately 4,470 vehicle-trips daily, a comparable figure with that of the conventional subdivision. When figures for the office development and retail traffic are added, the Cannon Forge mixed-use development project is anticipated to generate 18,580 new vehicle-trips on a weekday basis.

The following table is based on the Traffic Impact and Access Study for Cannon Forge by Vanasse/Hangen Associates and summarizes the expected traffic increases at key locations in the study area for the existing, 1993 No Build (assuming a 1 percent annual growth with no development on the site), 1993 CF Build (adding the effects of Cannon Forge traffic), and 1993 CS Build (adding the effects of the conventional subdivision traffic) scenarios.

ESTIMATED FUTURE DAILY TRAFFIC VOLUMES  
(rounded to nearest 100)

	Approximate <sup>1</sup> Daily Capacity	1983 AWDT <sup>2</sup>	1993 No-Build ADT	1993CF Build ADT	1993CS Build ADT
South Main St. east of Holly Lane	19,900	10,500	11,600	14,000	12,800
South Main St. west of Holly Lane:					
- Without Roadway Improvements	20,000	10,500	11,600	20,850	14,000
- With Roadway Improvements	38,800	10,500	11,600	20,850	N/A
Mechanic St. west of Oak St.	20,000	12,100	13,400	16,300	14,400
Oak St. north of Second Access Dr.	20,000	3,750	4,100	7,900	5,600



Oak St. south of Second Access Dr.	20,000	3,750	4,100	6,800	4,600
Cocasset St. east of Oak St.	18,000	4,650	5,100	7,650	5,500
Cocasset St. west of Oak St.	18,000	4,650	5,100	5,500	5,200

---

1/ Daily roadway capacity estimates were calculated by dividing the hourly capacity by the observed K factor.

2/ AWDT = Average weekday traffic represents average month conditions.

The comparison was made of trip distribution patterns for the conventional residential development based on two of the trip types analyzed by Vanasse/Hangen Associates for Cannon Forge; namely, residents to work and residents other trips. The relatively high traffic figures under the 1993 CS Build ADT (considering the 4470 vehicle-trips daily) are due to the fact that most traffic is due to the base, 1993 volumes without development.

The table reveals that the largest traffic volume increase under either Build alternative will occur on South Main Street west of Holly Lane. Although traffic from the conventional subdivision will still be within the daily carrying capacity of 20,000 vehicles, further congestion than that which exists today can be expected and peak hour congestion could reach 90% of the roadway capacity. Under the Cannon Forge proposal, this congestion will be handled by traffic improvements as outlined by the developer. Under the conventional subdivision, these improvements will probably have to be provided at public expense if at all.

#### ANALYSIS OF SIMEONE LIAISON COMMITTEE CONCERNS

The Simeone Liaison Committee was established to interact with developers concerning the "Simeone Property" and advise the Town of Foxborough accordingly. The Committee has analyzed the Cannon Forge proposal and has raised a number of concerns and recommendations regarding the development proposal. The following comments are provided as general observations to the concerns raised by the Committee in their Interim Report of February 13, 1984. Since specific concerns have been raised, further analysis is needed to provide satisfactory answers to the Committee and the town of Foxborough in general.

1. The development poses a danger to Foxborough's water supply.

An analysis has been done evaluating the soils and groundwater hydrology of the Cannon Forge development site. The bedrock on the site was stated to act as a barrier to groundwater flow. If this does exist, it will supply protection to the wells from the effluent associated with the proposed treatment facility. In general, the water supplies will be better protected by a sewer system rather than individual on-site septic tanks.

2. Traffic generated by the development would adversely affect Foxborough and its residents.

There is less difference between the Cannon Forge development and a conventional subdivision allowed under present zoning regulations than is readily apparent because of the types of trips generated by each type of development. How much of the increased traffic volume associated with Cannon Forge is mitigated by traffic-related improvements by the developer should be compared to the increased traffic volume associated with a conventional subdivision.

3. The development's residential uses would endanger Foxborough's ability to provide quality education to its children.

A comparison should be made between the 270 conventional units allowed under present zoning and the 580 condominium units proposed for Cannon Forge. MAPC has used the conservative figures of 1 child/household for conventional units and .25 children/household for condominium units. This has resulted in an additional 270 school-age children for conventional units and an additional 145 school-age children for Cannon Forge condominium units. The town should be making this comparison as a no-build if not a realistic alternative.

4. Residential areas in the immediate vicinity of the development will abut property containing non-residential uses.

As increased traffic on Oak Street is a main problem, the access to the street may be made more difficult to reduce saturation on this street. Office uses are not undesirable neighbors providing that proper site design and measures to mitigate potential impacts are undertaken. The Ames Road subdivision will be provided with more buffers with the mixed-use development than with a conventional subdivision, which would probably not have any buffers or landscaping improvements. The Barefoot Hill Road subdivision to the north would be less aesthetically affected by Cannon Forge than with a conventional subdivision, since the nearest building would be approximately 2500 feet away because of the powerline easement. The land to the north of this easement would be left as wooded under the Cannon Forge development scheme; there is no guarantee that this would be the case with a conventional subdivision.

5. The Committee is uncertain of CFDC's ability to develop the property as proposed.

The Metropolitan Area Planning Council is not able to address this concern as it is generally not our policy to make recommendations regarding specific developers.

#### QUALITY OF LIFE CHANGES

New developments can affect a community in a number of ways including changing the type and number of residents, the adequacy of their housing, community amenities and the perceived image of the community. Many communities do not want to change. Since major development proposals highlight change, they are often blamed for all the effects of growth on a community. Some growth and change



is inevitable, however, whether or not the development in question is approved. The impacts of the development on the neighborhood as well as the community must be analyzed not on growth per se, but on the particular type, location, design and timing of that growth.

Development affects the number and type of people who live, work, shop in or visit the community. The conventional subdivision presently allowed under zoning regulations would increase the population of Sharon by 748 and Foxborough by 864; this represents a 5.5 percent increase in Sharon's 1980 population and a 6.1 percent increase in Foxborough's 1980 population. As the average assessed value of single-family homes in the Barefoot Hill Road subdivision was \$90,084, and the conventional subdivision homes are proposed to be similar, the composition of the population in the area will likely remain the same.

The condominiums proposed for Cannon Forge would increase the population of Sharon by 588 and Foxborough by 1218; this represents a 4.3 percent increase in Sharon's 1980 population and an 8.6 percent increase in Foxborough's 1980 population. As the average assessed valuation of the condominiums is assumed to be \$120,000, this may result in housing that is beyond the means of many current residents. This means the development will serve more affluent outsiders, not necessarily a problem for the communities. Whatever the case, the influx of new residents can easily be absorbed by phasing either development and given the fact that Foxborough is expected to grow 38.5 percent and Sharon 19.1 percent by 1990.

New development can affect community amenities in a number of ways. As a community grows it becomes capable of supporting a wider variety of activities. New development may increase local population enough to support specialized shops, services and social organizations. Proposed development may also be located in the vicinity of community assets such as woods, wetlands, meadows, etc. Loss or damage to these amenities can be an important cost of new development. Note, however, that such areas might be further threatened by alternatives which do nothing to mitigate negative impacts to these areas.

Other forms of amenities provide on-site services and facilities for the general public. A shopping center can greatly increase the variety of stores easily accessible to local residents, making the community a more convenient and rewarding place to live. Some residential developments also provide amenities for the general public, such as golf courses, meeting halls, and preserved open space.

How a development affects the perception of the community by residents and outsiders is also an important issue. Developments which are very large, visually prominent, or very different from the nearby area can substantially change the image of the neighborhood or community. Social impacts of the Cannon Forge development can be highlighted as follows:

- (a) The expanded shopping center will increase the number and variety of stores easily accessible to residents of the development and community as a whole. Residents wouldn't have to drive out of the community to shop as much. The shopping center will be community-sized and should not have a negative impact on Sharon's downtown which provides convenience goods and personal services.

- (b) The office development will affect Sharon's image, both for residents and outsiders. People will think of Sharon not only as a residential town but as an employment center as well. This may be good or bad depending on the community's view of increased revenues vs. social trade-offs.
- (c) The increased traffic, lower taxes, more jobs, variety of housing types, etc. will naturally affect the quality of life and social character of the communities. This should be measured against viable alternatives for the property as population and housing pressures create increased demand for development.

#### CONCLUDING REMARKS

The results of this analysis is that we feel the Cannon Forge development complies with the best planning practices and is a better proposal than the development of the property as a conventional subdivision. Although the Cannon Forge proposal is a large-scale development, this should not be looked at only negatively since the alternative is also large but less aesthetically pleasing, supplying fewer amenities in the form of open space and recreation, fewer employment opportunities and must be less sensitive to existing ecological conditions.

Both communities have the ability to increase the opportunity for quality development in the area through this large-scale project. Although large-scale projects do not guarantee higher quality, they do significantly increase the developer's opportunity to achieve quality through:

- . Physical design - a large-scale project is designed as a whole from the start.
- . Providing the opportunity to plan and provide a full range of facilities and services, and the financial resources to implement them.
- . Allowing the local governments to apply more sophisticated regulatory techniques to achieve public objectives (planned development districts).

MAPC feels the Cannon Forge development proposal, although large in scale, will result in a quality development that will enhance the communities and provide for better conditions than the alternative. This is based on the following reasons as highlighted earlier in this report.

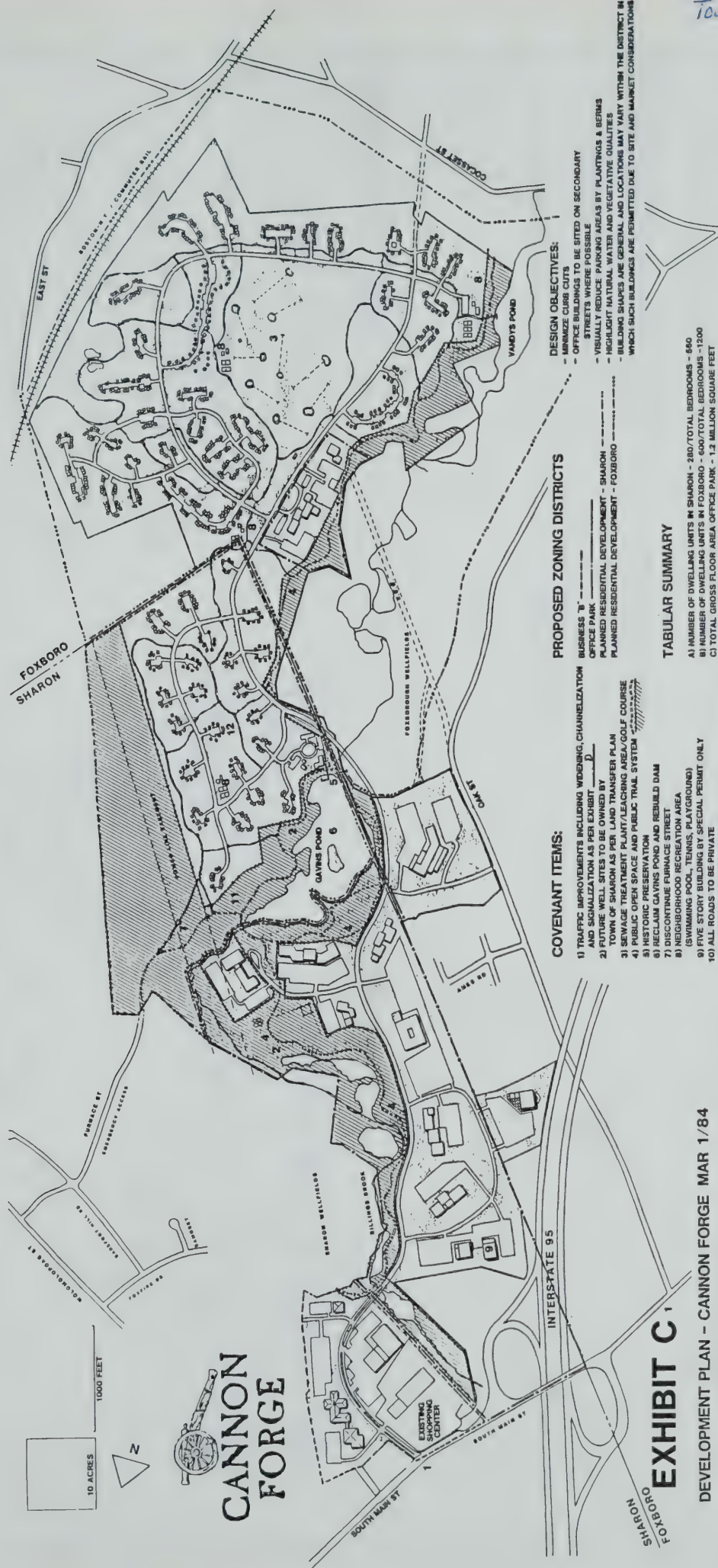
- . The marketability of the residential condominiums is very good given the increase of population in the towns and the demand for housing.
- . Because of the absence of first-class office space in Sharon and Foxborough, and the lower vacancy rate in office buildings in nearby communities, the office development will be highly marketable. The demand for office space is projected to remain strong.



- . The fiscal impact of development will result in more revenues to the communities which will alleviate any costs associated with the development as well as helping to alleviate the fiscal problems of the communities in general. Fewer educational costs will be incurred than with the conventional subdivision resulting in net revenues of \$2.6 million for Sharon and \$2.0 million for Foxborough.
- . Although there will be more traffic impacts associated with Cannon Forge, mitigating traffic measures will be undertaken by the developer to improve conditions on the roadways. This may not be the case with a conventional subdivision, which would also have a lesser but negative impact on the roadways just the same.
- . The Simeone Liaison Committee report has addressed a number of concerns which warrant further analysis by the Town of Foxborough. Their recommendations of a dialogue with officials in Sharon, formulating a strategy and course of action on the development, an evaluation of the project's impact on Foxborough from independent studies, and considering means to lessen problems that any future proposals might bring if Cannon Forge is not developed are well taken.
- . Quality of life will definitely be affected by the development. Whether this change is looked at in a negative or positive way depends on one's point of view, and can be reinforced or diminished by the quality of the development. As population and housing demand increase, viable and comprehensive solutions will be needed to absorb the new residents and provide increased community services and facilities. Cannon Forge proposes to do just this in a way and manner that will benefit the communities the most in the long run.

To summarize, phased growth for Foxborough should be developed as part of the agreement with the developer. It would be beneficial to work out a formula similar to that of Sharon. Phasing for the condominiums should be less than the yearly maximum allowed for the town to minimize negative impacts to other areas in town. Foxborough should "look over Sharon's shoulder" to ensure compatibility of development and land use, sometimes overlooked by communities sharing common boundaries. Finally, efforts should continue to re-establish the East Foxborough commuter rail station to service the population of this area.





Town Meeting  
4/9/84

# DESIGN OBJECTIVES:

- MINIMIZE CURB CUTS
- OFFICE BUILDINGS TO BE SITED ON SECONDARY STREETS WHERE POSSIBLE
- VISUALLY REDUCE PARKING AREAS BY PLANTINGS & BERMS
- HIGHLIGHT NATURAL WATER AND VEGETATIVE QUALITIES
- BUILDING SHAPES ARE GENERAL AND LOCATIONS MAY VARY WITHIN THE DISTRICT IN WHICH SUCH BUILDINGS ARE PERMITTED DUE TO SITE AND MARKET CONSIDERATIONS

# PROPOSED ZONING DISTRICTS

- BUSINESS 3
- OFFICE PARK
- PLANNED RESIDENTIAL DEVELOPMENT - SHARON
- PLANNED RESIDENTIAL DEVELOPMENT - FOXBORO

# TABULAR SUMMARY

- A) NUMBER OF DWELLING UNITS IN SHARON - 280/TOTAL BEDROOMS - 640
- B) NUMBER OF DWELLING UNITS IN FOXBORO - 600/TOTAL BEDROOMS - 1200
- C) TOTAL GROSS FLOOR AREA OFFICE PARK - 1.2 MILLION SQUARE FEET
- D) TOTAL GROSS FLOOR AREA SHOPPING CENTER - 100,000 SQUARE FEET

# COVENANT ITEMS:

- 1) TRAFFIC IMPROVEMENTS INCLUDING WIDENING, CHANNELIZATION AND SIGNALIZATION AS PER EXHIBIT
- 2) FUTURE WELL SITES TO BE OWNED BY TOWN OF SHARON AS PER LAND TRANSFER PLAN
- 3) SEWAGE TREATMENT PLANT/LEACHING AREA/GOLF COURSE
- 4) PUBLIC OPEN SPACE AND PUBLIC TRAIL SYSTEM
- 5) HISTORIC PRESERVATION
- 6) DISCONTINUE FURNACE STREET
- 7) DISCONTINUE FURNACE STREET
- 8) NEIGHBORHOOD RECREATION AREA (SWIMMING POOL, TENNIS, PLAYGROUND)
- 9) FIVE STORY BUILDING BY SPECIAL PERMIT ONLY
- 10) ALL ROADS TO BE PRIVATE
- 11) ALTERNATIVE ACCESS ROAD
- 12) TYPICAL RESIDENTIAL CLUSTER NOT TO EXCEED 24 UNITS

CANNON FORGE

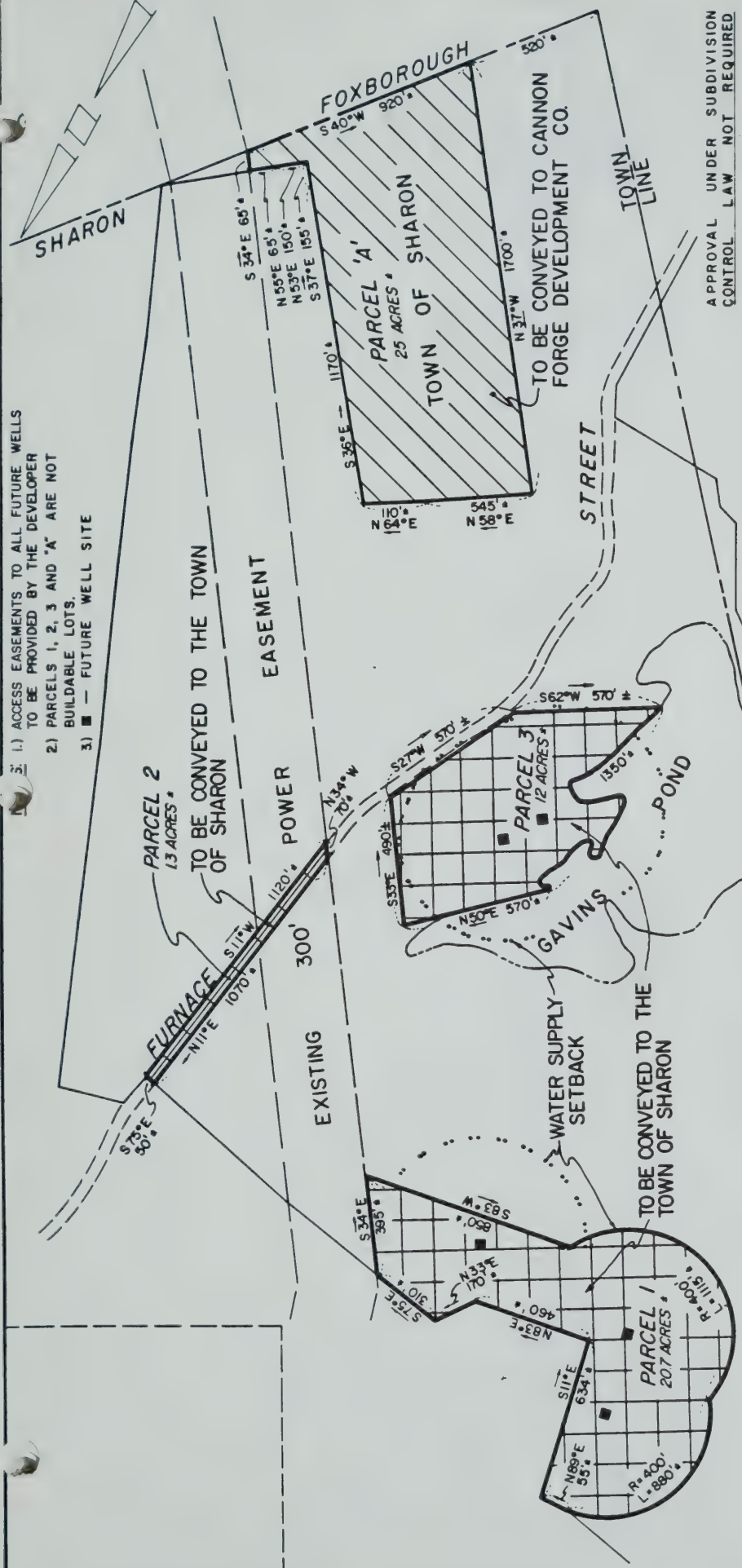
EXHIBIT C

DEVELOPMENT PLAN - CANNON FORGE MAR 1/84  
SHARON & FOXBORO, MASSACHUSETTS





- 1) ACCESS EASEMENTS TO ALL FUTURE WELLS TO BE PROVIDED BY THE DEVELOPER
- 2) PARCELS 1, 2, 3 AND 'A' ARE NOT BUILDABLE LOTS.
- 3) ■ — FUTURE WELL SITE



APPROVAL UNDER SUBDIVISION  
CONTROL LAW NOT REQUIRED  
DATE: \_\_\_\_\_

PLANNING BOARD-TOWN OF SHARON

# PLAN OF PROPOSED LAND TRANSFER BETWEEN CANNON FORGE DEVELOPMENT CO. AND THE TOWN OF SHARON

SCALE: 1" = 300'  
JAN. 30, 1984  
NORWOOD ENGINEERING CO., INC.  
CONSULTING ENGINEERS - LAND SURVEYORS  
1410 PROVIDENCE PIKE  
NORWOOD, MASS.

I CERTIFY THAT THIS PLAN HAS BEEN  
PREPARED IN CONFORMITY WITH THE  
RULES AND REGULATIONS OF THE REGISTER  
OF DEEDS OF THE COMMONWEALTH OF  
MASSACHUSETTS.  
DATE: JAN. 30, 1984

*[Signature]*  
REGISTERED LAND SURVEYOR



**EXHIBIT A**

RT. 1-95





# REFERENCES:

1. Compiled plan of land in Foxborough & Sharon, Mass., 1961, Scale 1" = 100', Norwood Engineering, Co., Inc.
2. Aerial Photographs prepared under the direction of Harry L. Norton, P.E. from September, 1961 to 1962, by Hill & Hill, Inc.

# NOTE:

This plan is to be used for conceptual purposes only. Verification surveys are required for design and construction.

# EXHIBIT D

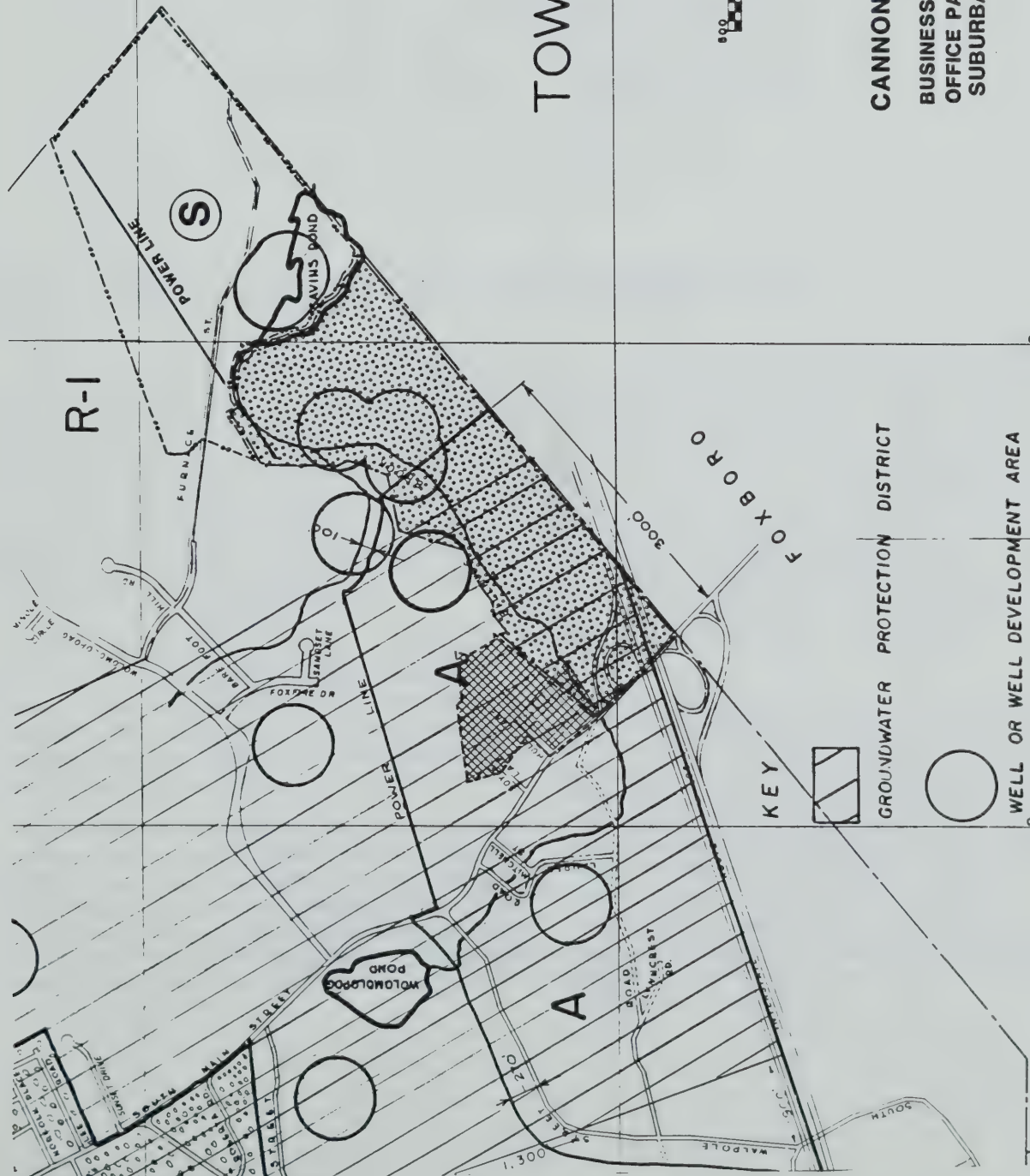
SOUTH MAIN ST. / MECHANIC ST.  
SHARON / FOXBOROUGH, MASSACHUSETTS

CANNON FORGE DEVELOPMENT CO  
BOSTON, MASSACHUSETTS

<b>VH</b> <small>Vertical / Horizontal Associates, Inc.</small> <small>1000 Beacon Street, Suite 1000, Boston, MA 02116</small> <small>617-452-1100</small>	
DESIGNED BY	J. L. B.
CHECKED BY	J. L. B.
DATE	1983
SCALE	1" = 100'
SHEET	OF 3







# TOWN OF SHARON

MASSACHUSETTS

## ZONING MAP



### CANNON FORGE ZONING PROPOSALS

- BUSINESS 'B'
- OFFICE PARK
- SUBURBAN



GROUNDWATER PROTECTION DISTRICT



WELL OR WELL DEVELOPMENT AREA



# Guide to features

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## The Boston Globe

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## Cannon Forge considered

Sharon is divided over the proposed development of one of the largest office parks and residential developments in New England. In this week's nonbinding referendum, slightly more than half the town's voters favored rezoning 620 acres of prime land to allow construction of the \$300-million development. The referendum passed by 63 votes, but the proposed rezoning can take place only if approved by a two-thirds vote at Monday's town meeting.

The dilemma facing Sharon is not unique. The town, like others in Massachusetts, has been financially pressed in the aftermath of Proposition 2½. Some of its 14,000 residents believe that the public schools have deteriorated and that public services have suffered.

Those who favor the Cannon Forge development argue that the project would significantly increase the town's tax base. Those who oppose it fear that the project — estimated at more than eight times the size of the South Shore Plaza — will add to traffic and complicate water and sewer problems, dramatically changing Sharon.

Towns like Sharon are often ill-equipped to deal with the complex issues raised by major development proposals. The towns do not have full-time professional staffs. They cannot afford a sophisticated environmental impact review. In Sharon, for example, town officials have had to rely on studies prepared by the developer. Because of the escalating bitterness, they recently hired consultants to review the developers' reports, but as Globe reporter Thomas Palmer's recent story made clear, this has not assuaged those who oppose Cannon Forge.

Perhaps Sharon should follow the example of the neighboring town of Foxborough and require developers to put up funds for an independent analysis of the proposed development. This would allow town officials and residents to make a more informed determination of the project's consequences. Such a study could be weighed against the developer's reports and used for long-range planning purposes as well.

Managing growth while maintaining town character is tricky business. Towns like Sharon need help and they may have to require developers to pay for it.



## Proposed \$300m development has Sharon split on quality of life

By Thomas Palmer  
Globe Staff

SHARON — A proposal to develop a prime piece of land into one of the largest office park and residential-condominium developments in New England will leave its marks on this small residential com-

munity even if it is spurned at Sharon's town meeting next month.

The length and intensity of the argument over the proposed project, which would be more than eight times the size of South Shore Plaza in Braintree, have been so great that some bitterness will re-

main no matter what happens, people on both sides agree.

At issue is Cannon Forge, a multi-use development project that would cover 620 acres of mostly wooded land adjacent to Rte. 95, straddling the Sharon-Foxborough line. Sharon voters will decide at

their annual town meeting on April 9 whether to change their zoning bylaws to allow the development. The proposal has not yet been presented to Foxborough.

The debate is so acerbic that some members of the Sharon Historical Society, SHARON, Page 28

## How Reasonable Are The Cannon Forge Tax Estimates?

### TAX FACTS

The following table is a summary of tax revenues derived from "first class" office buildings in nearby towns. These figures were obtained from town tax records in local assessor's offices.

COMPANY	TAX REVENUES/SQUARE FOOT
Codex, Mansfield (91,000 sq. ft.)	\$ .95
Datel, Mansfield (114,000 sq. ft.)	\$ .65
Cullinet, Westwood (95,000 sq. ft.)	\$ .75
Cullinet, Westwood (82,000 sq. ft.)	\$ .66
990 Washington St., Dedham (160,000 sq. ft.)	\$1.26
Foxboro Co., Foxboro (164,000 sq. ft.)	\$1.07
Wellesley Office Park, Wellesley (504,000 sq. ft.)	\$1.26
<u>AVERAGE</u>	<u>\$ .94</u>
<u>Cannon Forge Office Park estimate</u>	<u>\$3.50</u>

*Applying the \$.94 average tax revenue, a fully built Cannon Forge office park will generate approximately \$2 million LESS than the \$2.8 million promised by Cannon Forge.*

## DON'T BE MISLED BY SELF SERVING TAX PROMISES

★★★ VOTE NO

at the April 9 Town Meeting on ARTICLES 1-5



Do you know that if the Cannon Forge Proposal is approved:

### TAXES

1. There may only be a minor increase in tax revenue! An independent study commissioned by the Sharon Planning Board (Philip B. Herr and Associates, March 12, 1984) indicates that there will be in 1995, only 712,000 \*in net tax revenue from the development, 80% less than the developers' claims of \$2.9 million assuming, in fact, that it is completed at that time. \*(in 1983 dollars)
2. There may be 111-286\* school children generated by the development (Herr study), and not 30-70 as claimed by the developers. Mr. Herr's estimate is roughly 4 times greater than that of the developers. *The study indicates Cannon Forge may generate more school age children than the present single family home alternative, thereby adding additional educational costs to the town.* \*(on site/off site)

### TRAFFIC

3. There will be more than 18,500 daily vehicle trips generated by this development according to the developer's own traffic study. John May of Kaehrle Traffic Associates, a traffic engineer with over 25 years experience concludes that their number may be substantially understated. (see review in Sharon Public Library) Their study also states that traffic on South Main Street, east of Wolomolopoag Street (towards the center & Cobb's Corner), even with improvements, will experience "long traffic delays" 7000 parking spaces will be required by the bylaw, more parking spaces than at the South Shore Plaza.

### WATER

4. The town will have ignored 3 separate, town initiated and funded studies which have recommended stringent restrictions regarding development around the Gavin's Pond area.
  - (a) J.C. Gray, Sharon Master Plan, 1960
  - (b) Metcalf & Eddy Engineers, Groundwater Investigation Program, 1970
  - (c) Amory Engineers, Groundwater Investigation Program, 1981
5. The underground aquifer, according to the developers' own water study, will be partly recharged from the run-off from millions of square feet of parking lots, roads, and rooftops. *This run-off will be polluted by oil, gasoline, anti-freeze and road salt.*
6. The planned sewage treatment plant with 270,000 gallons per day of sewage effluent will be placed over our underground water supply if permitted by the DEQE. *Potential backflow or leakage of this effluent into the aquifer together with contaminated groundwater run-off could pose a serious threat of pollution to our drinking water supply. This proposed treatment plant may simply be understood as a giant septic tank with large leaching fields. The developer's study has indicated that a sanitary landfill may be required to dispose of large amounts of sludge, similar to the type of material pumped from your own septic tank.*
7. The town has experienced water shortages and bans for years. Water demands of the thousands of new employees and residents can only aggravate these water shortages, unless costly new wells are drilled (at a minimum of \$500,000 each) and large sums are spent on new distribution and storage facilities. *The Phil Herr study indicates that there may be a deficit of some 260,000 gallons of water a day during peak demand periods, 1/4 of our current average daily use.*

IN THE OPINION OF THE UNDERSIGNED, THAT FOR A PROJECT OF THIS SCALE AND TOTAL IMPACT ON THE TOWN, THE DEVELOPERS HAVE NOT CONDUCTED ADEQUATE ENGINEERING OR ENVIRONMENTAL IMPACT STUDIES TO PROVIDE ENOUGH INFORMATION FOR CITIZENS TO MAKE AN EDUCATED DECISION.

MOST PEOPLE HAVE CHOSEN TO LIVE IN SHARON FOR ITS QUIET, SAFE STREETS, FRIENDLY NEIGHBORHOODS AND AMPLE, PURE WATER. THESE ARE A TREASURE AND SHOULD NOT BE TAKEN FOR GRANTED. IS IT WORTH ENDANGERING OUR UNIQUE ENVIRONMENT AND PRECIOUS QUALITY OF LIFE FOR SUCH A SMALL AMOUNT OF POTENTIAL TAX REVENUE?

DON'T GAMBLE SHARON'S QUALITY OF LIFE FOR PROMISES:::

\*\* VOTE NO



# Sharon split on proposed \$300m project

## ■ SHARON

Continued from Page 1

accused some of the directors of accepting a bribe from the developers, who pledged \$25,000 to help identify a site where the first Revolutionary War cannon was forged.

"I think it will be lingering," said Sydney W. Falk, a Sharon resident and candidate for the Board of Selectmen, referring to the rancor. "The people who are anti-Cannon Forge... are thoroughly convinced that they're being badly hurt." Falk, although opposed to the development, has pledged to work for it if the town votes in its favor. "There are a great number to whom this is a very highly charged emotional issue," Falk said.

### Decision crucial for 14,000 residents

The decision is a crucial one for Sharon's 14,000 residents. After 10 years, the development would have a total of approximately 5000 additional residents and workers daily. Sharon grew by only one-fourth that amount from 1970 to 1980.

"There is no project in New England that is similar to this," said David Wiuka, a Sharon resident whose company, CPS Planners Inc., is one of four partners in the Cannon Forge Development Co. "It is in fact a small new town."

Wiuka, who sells real estate from an office in Sharon, and his partner in the development team, Edward Lyons, a Sharon resident, architect and former chairman of the planning board, have been working with town officials to shape and sell the project for more than a year. According to some members of Citizens to Preserve Sharon, a group in opposition to the development, the sell has been much too easy.

"I don't think the town boards have looked at the issues critically," said Jay M. Ritt, a physician who lives near the site. "A lot of the questioning has come from our group."

### Preservationists mount campaign

Citizens to Preserve Sharon is conducting a campaign of advertising, coffee and word of mouth against the developers' well-financed and vigorous promotion. Most of the town's officials, conscious of the potential for a revenue-producing industrial base that would offset the budget-shrinking effects of Prop. 2½, favor the proposal.

"This town has no tax base," said Selectman Colleen M. Tuck. "Our schools have deteriorated since 2½. We have the same number of police as 12 years ago."

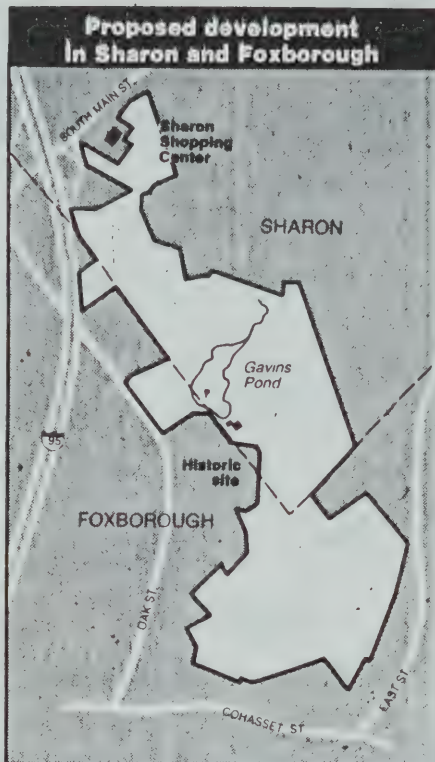
By 1995, at the end of 10 years of gradual construction, Cannon Forge would contain 1.2 million feet of office space, 860 condominiums, a total of more than 7000 parking spaces, and a shopping center twice the size of the 100,000-square-foot K-Mart retail complex presently on the edge of the site.

Citizens to Preserve Sharon, which claims to have the support of more than 500 residents, says not enough facts are known. "For a project that turns a whole area around, the studies should have been much more detailed," said a Sharon businessman who, reflecting the divisions that Cannon Forge has generated, asked not to be identified.

Responding to such criticism, Tuck said: "It is not reasonable to expect municipalities to go out and spend large amounts of money on reports. ... I do not feel that the town has to go out and replicate all the studies the developer has done."

### Water, traffic study commissioned

Late in February, however, the town's planning board commissioned a study of two particularly controversial aspects of the Cannon



**'I think it [the rancor] will be lingering. There are a great number to whom this is a very highly charged emotional issue.'**

**—Sydney W. Falk, candidate for town selectman in Sharon**

Forge project: water and traffic. Two days ago, less than a week before next Monday's nonbinding town referendum on the development proposal, the second of the studies was presented to planning board members. The board then voted, 3-1, to recommend passage to voters.

Over the last few months, Sharon's police chief and fire chief, members of the Board of Selectmen, the school board, the Warrant Committee, and the Metropolitan Area Planning Council have come out in favor of the development. Cannon Forge opponents complain that these positions were taken before the studies were received.

"We could sense the feeling that what we had there was a rush to judgment," said Robert Soller, an early opponent. "... It was almost an attitude of 'Don't confuse me with the facts.'"

Opponents argue that the traffic and water studies that are finally being done constitute only a review of the developers' figures, not fully independent assessments of the project.

Most hotly debated are the so-called cost-benefit figures: How much revenue would be generated for a town squeezed — like other small, semirural communities with little revenue-producing industrial base — for tax dollars?

Cannon Forge figures show a net benefit to Sharon of approximately \$2.7 million per year.

The one independent study done concluded

that, although not as great as the developer claims, the financial impact on Sharon would constitute "a large benefit" compared with the effects of the alternative, a single-family-housing subdivision.

"This is the only place that I see for us to establish a zone where we can build a tax base for this town..." said Tuck. "If you're really worried about the quality of life in Sharon — and I am — then you favor it."

A primary quality-of-life issue being considered is water, because Cannon Forge would be located over an underground supply. The developers' consultants, and the planning board's as well, have estimated that a sewage-treatment plant can be built there safely. But that cannot be guaranteed, and some Sharon residents want proof before they vote to rezone the land.

Developers have agreed to a set of covenants, or agreements, that would be legally binding and provide such amenities as tennis courts and nature trails, as well as two new well sites for the town.

"There is a noose around the neck of the developer that is tighter than has ever been done," Wiuka told a small group of residents recently. He said it had been suggested to him that "the town is getting a better deal than they have the right to ask for."

But "Who is the town making its deal with?" is a question to which opponents say they cannot get an adequate answer.

In addition to Wiuka and his planning firm, the partners in the Cannon Forge Development Co. are Lyons and his firm, Falcon Associates — Architects Inc.; Nathan H. Weiner of Swamps-cott, a business partner and second cousin of Lyons'; and Skanska (USA) Inc., the US subsidiary of a giant Swedish construction and development company.

### Project estimated to cost \$300m

According to Wiuka, whose firm has done planning for numerous municipalities, and Lyons, an architect, their respective companies would plan and help design the project, estimated at a total cost of \$300 million. (Copley Place, by comparison, cost approximately \$500 million.)

When opponents of the development say Wiuka and Lyons have no experience in bringing off such a project, the developers point to the resources and track record of the Swedish company, whose subsidiaries would provide the financial backing and construct buildings and roads. But members of Citizens to Preserve Sharon have uncovered some past experience that worries them.

Both Lyons and Weiner, along with architect Ake G. Goransson of Canton, were officers in the early 1970s of the architectural firm of Haldeman & Goransson Associates Inc., which designed a science building on the UMass/Boston campus. The three men are now officers of Sweco USA Inc., which Lyons said would do some of the Cannon Forge architectural work.

Haldeman & Goransson was severely criticized for its work in the UMass project 10 years later by the Ward Commission, which investigated contracts given out on state and county buildings. And Haldeman & Goransson was sued in Suffolk Superior Court early in 1980 by the Commonwealth of Massachusetts for civil damages allegedly resulting from the design work on that building. The suit has never been concluded.

Lyons and Weiner both say their roles in the UMass/Boston building were minor, neither having been architects at the time. Lyons was an assistant, not yet a registered architect, and Weiner was treasurer of the firm.

"To try to make that something of my personal responsibility is simply not so," said Lyons. He blamed opponents of Cannon Forge for raising what he considers irrelevant issues. "They will dredge out anything they can find on anybody."

"They are against it," Lyons said. "They have been against it from the first, and they know no limitations."



Memo: From The Citizens To Preserve Sharon

4/6/84

The Cannon Forge developers assumed a \$ 150. per sq. ft. ASSESSED VALUATION for their office buildings. If they had used the more reasonable, independently developed, numbers circled below in Exhibit A, then the annual tax revenue benefit of Cannon Forge (upon project completion) would have been about \$ 900,000. to \$ 1,900,000. LOWER!

Don't Gamble Sharon's Future On Self-Serving Tax Promises

**Phillip B. Herr & Associates**

Independent Consultants to  
Sharon's Planning Board

COMMUNITY AND REGIONAL PLANNING CONSULTANTS  
261 NEWBURY STREET, BOSTON, MASSACHUSETTS 02116 PHONE: 617 534-5620

**ASSESSED VALUATIONS: CANNON FORGE**  
Sharon Planning Board  
March 30, 1984

**OFFICE BUILDINGS: VALUATION PER SQUARE FOOT**

Our basic estimate was.....\$75.00  
To test on the low side we used.....\$50.00  
To test on the high side we used.....\$100.00  
Talk with Bud Cleveland<sup>1</sup> suggests.....\$79.00  
Mansfield comparables<sup>2</sup> suggest.....\$50.00

Conclusion: we should not change our estimates.

**DWELLINGS: VALUATION PER DWELLING UNIT**

	Condos	Single
Our basic value estimates were:	\$100,000	\$100,000
To test on the adverse side we used:	\$90,000	\$110,000
To test on the favorable side we used:	\$110,000	\$100,000
Marilyn Kahn's research <sup>3</sup> suggests:	less than single \$72-160,000	

Conclusion: we should not change our estimates.

1. Phone conversation 3/30 suggests \$12.50 per square foot as economic rent (Calendar 1983), 14.5% capitalization rate. That computes to \$86.21 per square foot. Deflated to January 1, 1982 (the value base for FY83 analysis) the figure is \$79. [Mr. Cleveland is Sharon's Assessor.]

2. Marilyn Kahn found \$51 and \$54 per square foot assessments; which are legitimate comparables since Mansfield and Sharon have similar assessing practices and about 100% valuation. [Mr. Kahn is on the Planning Board.]

3. Newspaper ads c 3/24 ranging from \$84,900 to \$189,900 in Sharon. Anything within that range is conceivable, depending upon developer judgement, though note that those are values which will be reflected in FY85 tax rates. At January, 1982 values that range is \$71,900 to \$160,700.

**\*\* VOTE NO**

**at the April 9 Town Meeting on Articles 1-5,  
THIS IS THE ONLY VOTE THAT COUNTS.**

John DiNapoli, P.E., B.S., M.S. Civil Engineering & Management

Arnold Wallenstein, M.S. Environmental Health Sciences, J.D.

William Aitkenhead, Ph.D, Physics

Martin A. Levitt, M.S. Public Health

Joseph Whalen, J.D., Jay Ritt, M.D.

Daniel Lieberman, Ph.D. Cell Biophysics

Stuart Raifman, B.S., Aquatic Biology

Alison, Walsh, M. Ed.

To: The Townspeople of Sharon

4/6/84

From: The Citizens To Preserve Sharon

The Aquifer Protection Subcommittee is a subcommittee of the town's Planning Board. The report below was distributed to the Planning Board on April 4th.

REPORT

FROM: The Aquifer Protection Subcommittee

TO: The Planning Board and the  
Special Town Meeting considering the Cannon Forge Proposal

DATE: April 2, 1984

The Aquifer Protection Subcommittee considers the information (received from the various reports and presentations given it by Cannon Forge and its consultants or the Planning Boards consultants) inadequate to make a firm determination, since they have done no tests to determine the cones of influence. This type of testing is needed to tell where the most sensitive areas around the well are.

In studying the Cannon Forge plan and the land swap plan we have come up with a list of pros and cons to be considered.

PROS

1. The town will receive approximately 400 feet of land around prospective well sites in a land swap.
2. Elimination of multiple leaching fields near well sites.

CONS

1. Sewer line will pass just 400 feet from well sites. Any leaks would have to be in the cone of influence of the wells.
2. Office buildings and parking lots will butt the 400 feet of a perspective well and therefore is likely to be in the cone of influence. Runoff, which will be part of the recharge system will carry salt and other pollutants from cars.
3. When all sewage is piped in one area, and accident could be catastrophic.



## Dear Sharon Voter:

On April 9, 1984 the voters of Sharon will be presented with an opportunity that is unprecedented in the Town's history. At that Town Meeting, you will be asked to choose between changing the existing zoning by-laws to permit the creation of Cannon Forge, a carefully planned multi-use development, or to keep the zoning as it is today. Either alternative will have a dramatic impact on the future of Sharon.

Over the past year and a half we have diligently tried to keep you aware as the plan evolved. Your elected and appointed officials as well as many private citizens have participated in the process, molding the plan and fine tuning the language of the by-laws, covenants, restrictions, and guarantees.

We present this brochure to inform and to seek your support. We cannot emphasize enough the urgent need for your attendance at Town Meeting this April. Your vote will decide the future.



A **YES** vote for **CANNON FORGE** is a vote to preserve the quality of life in Sharon.



*CANNON FORGE plan for a typical fourplex residence*

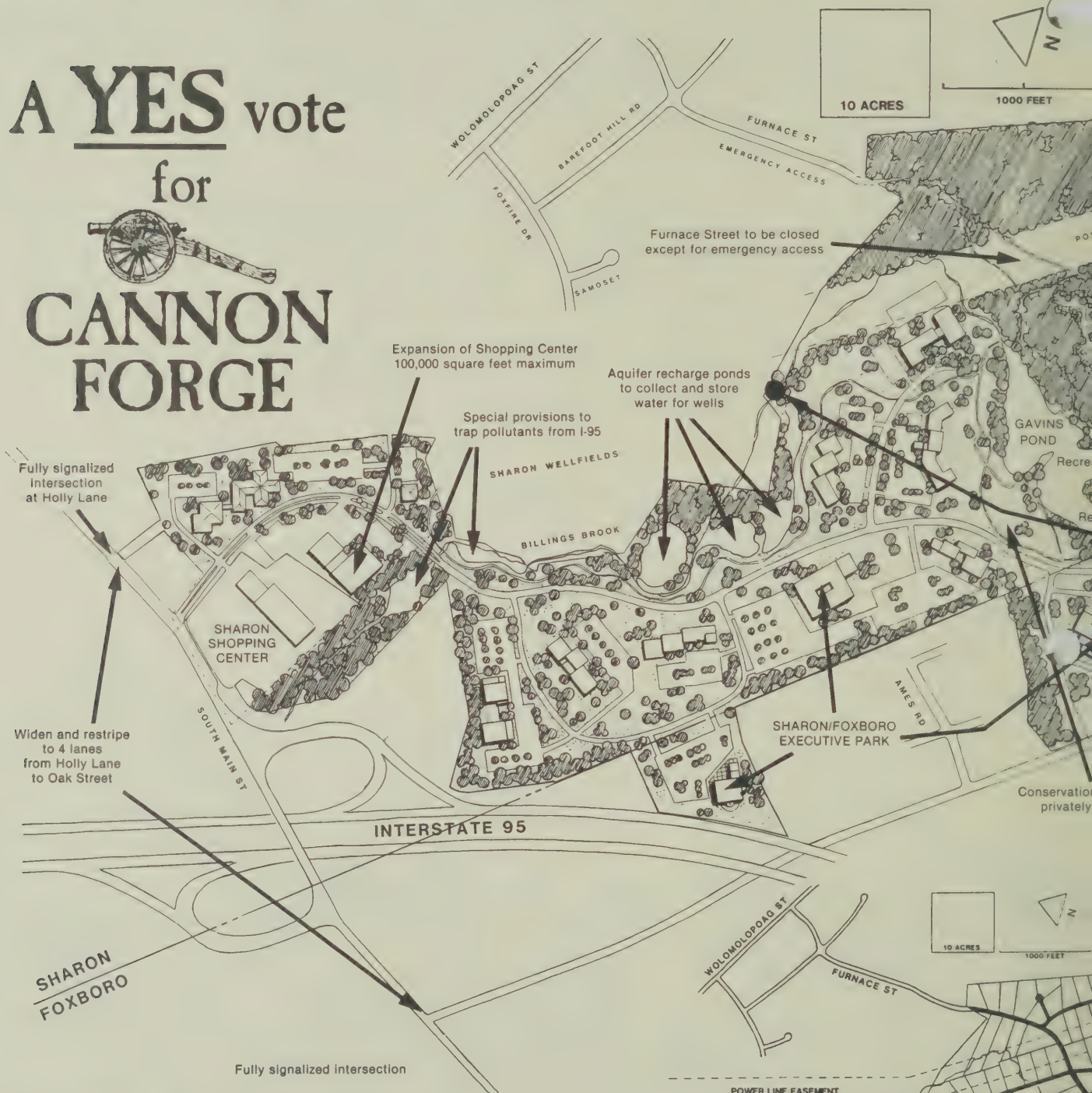


# The plan you see is what you are voting on

## A YES vote for



## CANNON FORGE



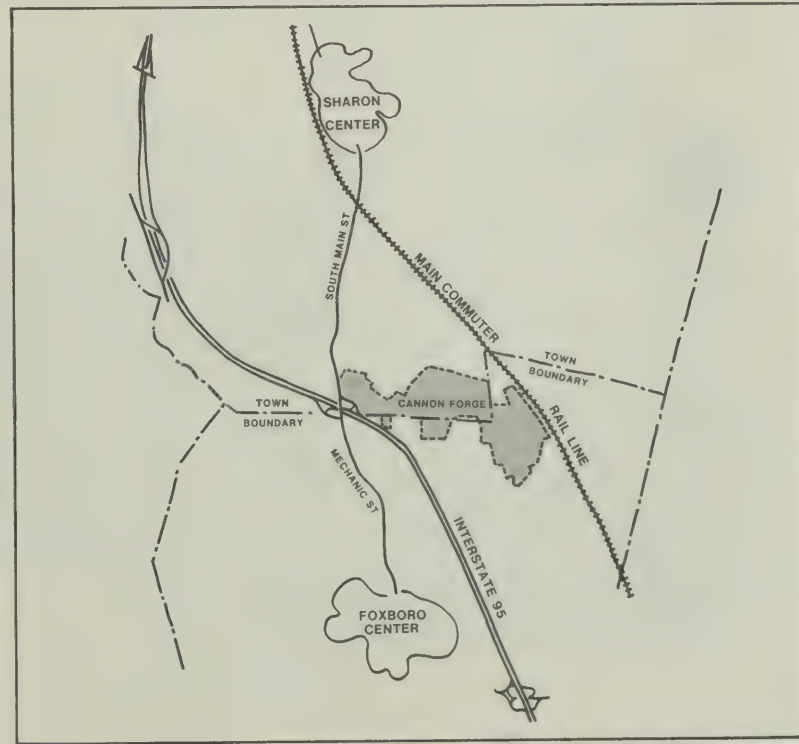
## A NO vote Conventional Subdivision

The same property  
(on a smaller map scale)  
with all available land  
divided into house lots.





# ing for on Monday, April 9, 1984.





# The Site

Behind the K-Mart shopping center on South Main Street lie 620 acres of worked-out gravel pits mixed with ponds, marshes, fields and woods. Half of the land is in Sharon, half is in Foxboro; yet all of this land has a single owner.

A large portion of the land is over an aquifer, an underground "lake" that feeds wells which

supply water to the two Towns. In addition to the shopping center, the land is abutted by an interchange of Interstate 95, residential neighborhoods, a half-mile of railroad track on the Boston commuter line, and other undeveloped land. There is a power line across it, several streams going through it, a cranberry bog across from it, and new residential growth around it.

## Current Zoning

This land is currently zoned for only one use: single-family detached homes. Today, without any rezoning, there can be developed between

200 and 234 homes in Sharon and 270 homes in Foxboro.

## The Alternative — Facts About CANNON FORGE

The Cannon Forge Development Company is proposing a carefully planned and environmentally sound multi-use development on the property.

The Cannon Forge plan covers a land area of 620 acres, with only 30% of this total acreage to be built upon. **70% of the land will not have buildings or roads.**

In the first year of development, Cannon Forge will **generate** almost \$500,000 in **tax revenue** to the Town of Sharon, and it will **increase to almost \$3.7 million per year** upon completion of the project.

The **residential portion** in Sharon can contain no more than 280 homes, a mixture of single-family detached, duplex, and multi-family townhouses with an average of two bedrooms each. The tallest home can be only 2½ stories and each home must have ½ acre of land allocated in common ownership.

The existing **shopping center will be upgraded and expanded**, but to no more than a total of 200,000 square feet, about the size of the Walpole Mall.

An **executive office park** will be created which specifically **excludes** research and development, assembly, manufacturing or warehousing facilities of any kind.

The **buildings in the office park** can be **no more than three stories high**. Only one five-story building is allowed by special permit for Sharon; it can only be built on a site bordering

I-95. **All office buildings must be buffered from residential areas** by trees and land.

There will be **no septic systems within the aquifer**. Cannon Forge must build a sewer system connecting each home and business, to carry waste water to a **treatment plant totally away from the aquifer** that feeds the Town wells.

Through a land trade with the Town of Sharon, the Town will receive 34 acres of land including **sites for two future wells**. This trade, a real estate transaction between Cannon Forge and the Town, also creates the legal mechanism for the covenants.

With **improvements on South Main Street** which will be **paid for by the developer**, **increased traffic can be handled by the existing street system**. The Furnace Street access to Cannon Forge will be closed and gated, the pavement torn up, and access provided only for emergency vehicles.

The **historic site and foundry**, at which the first cannon and shot were made for the Revolutionary War, **will be preserved**.

**350 acres** of open land will be restored and preserved by Cannon Forge for a system of **nature trails and open space**. The **public will have access** to Gavin's Pond and much of this open land for recreation.

The plan itself is being voted on as part of the Zoning package.



# The Developers

Cannon Forge Development Company is a joint venture which brings to the project the unique perspective and concerns of local businessmen and the financial backup and experience of an international construction company. Ed Lyons is a registered architect and landscape architect with nearly twenty years' experience in housing and office building design. He served for eight years on the Sharon Planning Board and has been a resident of Sharon for 18 years.

David Wluka, a well-known local real estate broker and developer, is a twelve year Sharon resident. A land planner by profession, David, in association with John Atwood of CPS Planners, has served as a land planning and zoning consultant to developers and municipalities in Massachusetts, Maine and New Hampshire for more than 15 years.

Construction and project management expertise are brought to the project by Skanconstruction, an American based, wholly owned subsidiary of Skanska, a Swedish construction company numbered among the world's largest and most reputable firms.

In addition, the development team has retained the following professional consultants to participate in the development of Cannon Forge:

Traffic Engineering:

Vanasse/Hangen Associates, Inc.

Environmental Science:

Carr Research Laboratory, Inc.

Sanitary Engineering:

SEA Consultants

Civil Engineering:

Norwood Engineering Company, Inc.

# The Process, Covenants and By-Laws

Almost two years ago, the process began as a blank piece of paper and our request for a planning committee consisting of Town Board and neighborhood representatives. We met many times and together revised our drafts to develop the Cannon Forge plan.

It took seven drafts over 15 months to come up with Zoning By-Law language satisfactory to the Planning Board. Then, the plan tied together with By-Laws and restrictions was reviewed by Town Counsel, the Town Engineer, and outside consultants hired by the Town.

Now, the Cannon Forge plan, as well as the By-Law language, is presented to the voters of Sharon. These By-Laws and covenants will require enactment by your vote at the April Town Meeting. This is what you'll be asked to vote for:

**Article One** authorizes the Selectmen to enter into a land trade with the developers of Cannon Forge. By this trade the Town will receive 34 acres of land including sites for two future wells in exchange for 25 acres of land within the residential district. This trade is contingent upon the rezoning with specific covenants and restrictions. Here is a summary of these conditions:

- A. All improvements to the site including open space, recreation areas, trails, etc. must conform with the approved plan. Specific limits are placed in the number of condominium units and the square footage of office and commercial space which can be built.
- B. No building construction is allowed without a sewer system and treatment plant being provided.
- C. All traffic improvements to South Main Street in the vicinity of the site must be made at no cost to the Town and in accordance with a schedule fixed by the Town.

D. Commercial building heights are limited to three stories with the exception of a single five story building adjacent to Route I-95.

E. Furnace Street is to be an emergency access only. Through traffic and construction vehicles are prohibited. A barrier is to be constructed and the balance of the pavement torn up.

F. Historic sites such as the cannon furnace are to be identified and preserved. The Development Company agrees to fund site improvement costs.

G. The Town is relieved of all obligations for the maintenance of the private road system. The Developer agrees to abide by Town restrictions regarding the application of road salts. The Town is relieved of its obligation to restore the "Town Pit" from which it has been removing gravel for the dump.

**Article Two** creates a new zoning district that permits development of attached and clustered single-family houses at two units per acre with an average of two bedrooms per unit.

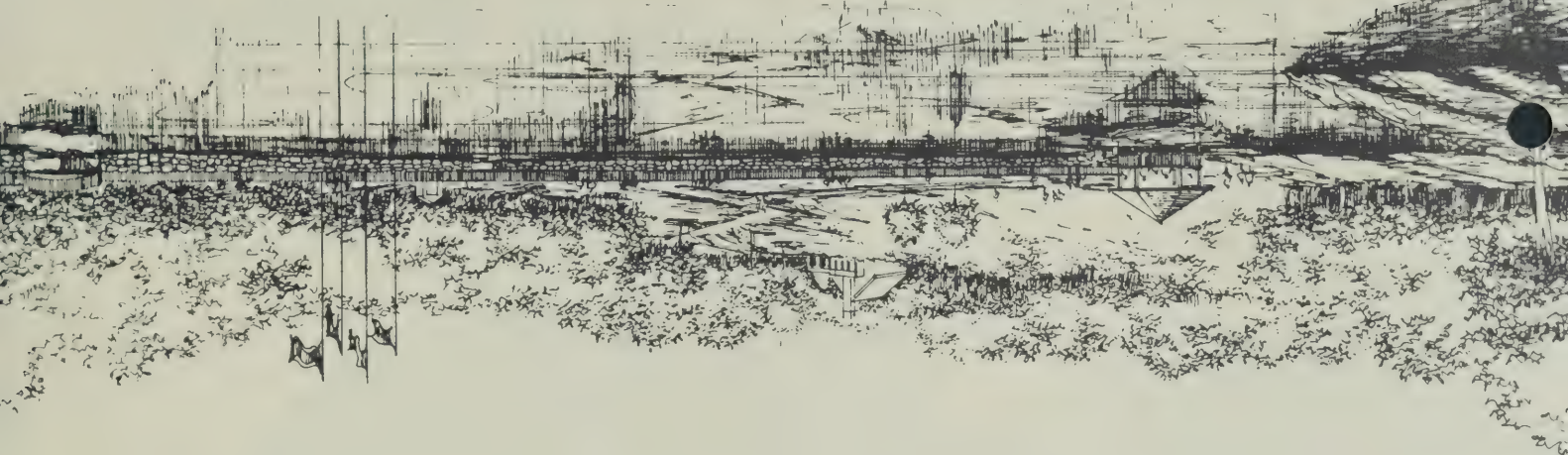
**Article Three** creates a new zoning district that permits development of an office park in the gravel pit area along Route I-95. Only office and office related uses are permitted. There can be no warehousing, no manufacturing, no assembly or similar industrial uses under any conditions. This is an office park.

**Article Four** creates the residential and office park districts described in Articles Two and Three. It also enlarges the existing shopping center area on South Main Street to about double the existing shopping space.

**Article Five** consists of the map changes that accompany the language changes to complete the by-law revision.



CANNON FORGE plan for Gavin House, historic site, and Gavin's Pond



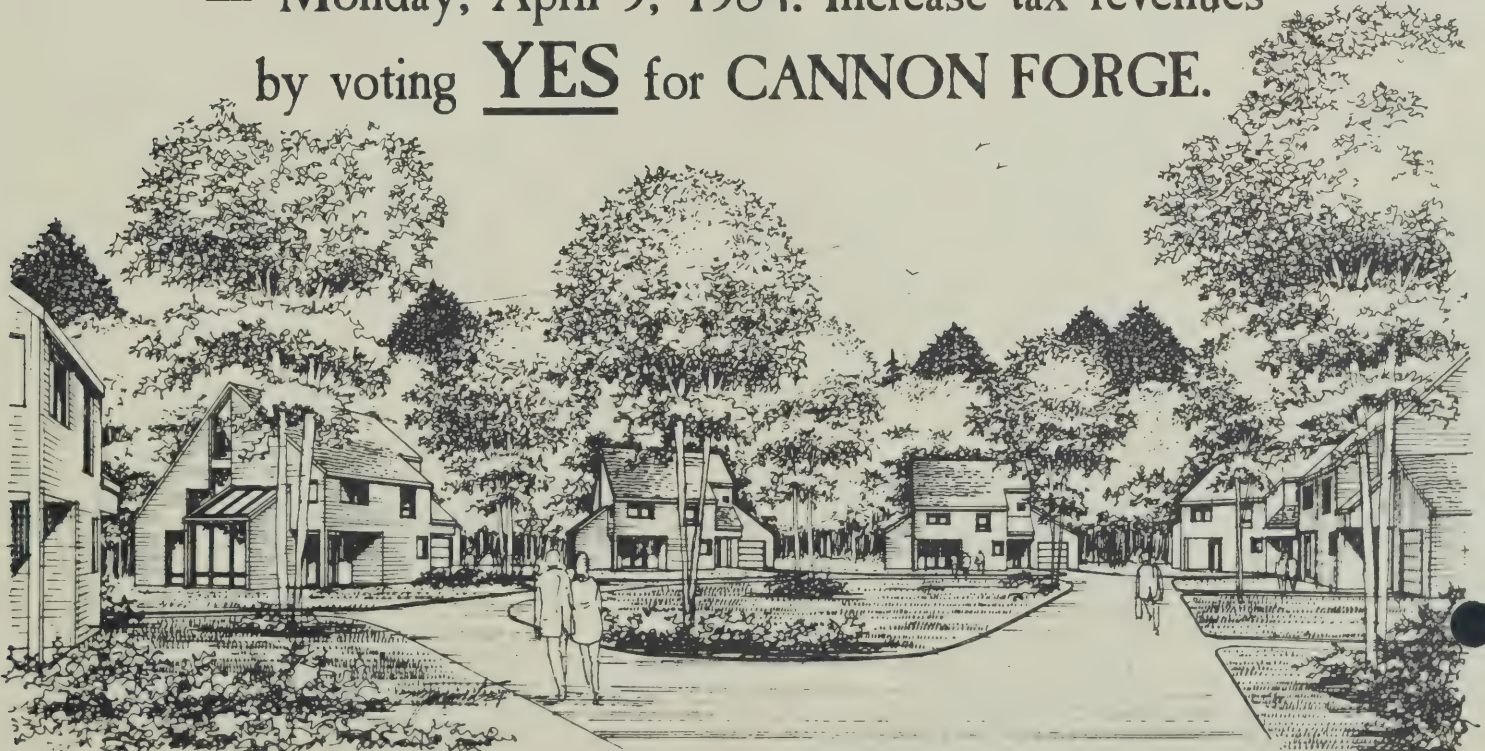
## An Important Message to Sharon Voters

BULK RATE  
U.S. POSTAGE PAID  
SHARON, MA  
PERMIT NO. 19

CANNON FORGE DEVELOPMENT COMPANY  
77 North Washington Street  
Boston, Massachusetts 02114  
742.9578



Your vote decides Sharon's future. Attend the Town Meeting  
— Monday, April 9, 1984: Increase tax revenues  
by voting **YES** for CANNON FORGE.



CANNON FORGE plan for single family homes

OPTION AGREEMENT

AGREEMENT entered into this 9th day of April, 1984, by and between:

Salvatore B. Simeone, Maria J. Luongo and Benjamin A. Simeone, Jr., of Weston, Norfolk County, tenants in common, Maria J. Luongo and Salvatore B. Simeone, trustees of Simeone Associates Trust under a Declaration of Trust, dated February 28, 1974 and recorded in Norfolk Deeds, Book 5021, Page 231 (all of whom are hereinafter referred to as "Simeones", which expression shall include their heirs, successors and assigns) and

Cannon Forge Development Co., a co-partnership having an usual place of business at 77 North Washington Street, Boston, Suffolk County, Massachusetts, (hereinafter called "Cannon Forge") and

The town of Sharon, a municipal corporation having its principal place of business at the Town Office Building, South Main Street, Sharon, Norfolk County, Massachusetts (hereinafter called "Town"),

WITNESSETH:

WHEREAS the Simeones own land, containing approximately 621 acres, shown on a plan of land entitled "Plan of Land to be Retained by Cannon Forge Development Co. in Sharon and





Foxborough, Mass., dated March 30, 1984, prepared by Norwood Engineering Co., Inc. and recorded concurrently herewith in Norfolk County Registry of Deeds, (hereinafter called "Retained Land Plan") of which approximately 321 acres are situated in Sharon and approximately 300 acres are situated in Foxborough. Said land includes Parcels 1, 2 and 3 shown on said plan but excludes Parcel A on said plan. The land owned by the Simeones is hereinafter called "Simeone's Land"; and

WHEREAS Cannon Forge has a contractual right to acquire ownership from the Simeones of the Simeone's Land; and

WHEREAS the Town owns Parcel A as shown on the Retained Land Plan:

NOW, THEREFORE, FOR VALUABLE CONSIDERATION EACH PARTY TO THE OTHER PAID, IT IS AGREED AS FOLLOWS:

1. The Simeones and Cannon Forge on the terms and conditions herein set forth grants to the Town an irrevocable option to purchase Parcels 1, 2 and 3 as shown on the Retained Land Plan and more fully described in a proposed deed, a copy of which is attached hereto and marked Exhibit A.

2. The Town on the terms and conditions herein set forth grants to the Simeones, their heirs, successors and assigns an irrevocable option to purchase Parcel A as shown on the Retained Land Plan and more fully described in a proposed deed, a copy of which is attached hereto and marked Exhibit B.



3. Upon exercise of the option by the Town as provided in Clause 1 hereof or upon exercise of the option by the Simeones as provided in Clause 2 hereof, the Simeones shall deliver to the Town a deed in the form attached hereto as Exhibit A. Said deed shall convey to the Town a good and clear record and marketable title free from any mortgage or other encumbrance except reservations, easements, covenants and restrictions as are contained in Exhibit A and subject to such municipal real estate taxes for the then current year as are then unpaid. Concurrently therewith the Town shall deliver to the Simeones a deed in the form attached hereto as Exhibit B (except that the grantee therein shall be the same person, persons or entity as is then named as grantor in the deed, a form of which is marked Exhibit A). Said deed shall convey to the grantor all of the Town's right, title and interest free from any mortgage or other encumbrance except reservations, easements, covenants and restrictions as are contained in or incorporated into Exhibit B.

4. The time of delivery of the deeds shall be set forth in a written recordable notice of exercise of the option and the time set shall be no more than 30 days from the date of the notice and shall be at 9:00 A.M. at the Norfolk County Registry of Deeds unless another time and place is mutually agreed upon.

5. For the same consideration the Simeones covenant and agree that upon exercise of the option under either Clauses





1 or 2 hereof and completion of the transfers pursuant thereto it will hold the adjoining land consisting of all of the Simeones Land, excluding Parcels 1, 2 and 3, subject to all of the same covenants and restrictions as are set forth in the form of Deed marked Exhibit A.

6A. The options shall be exercisable pursuant to Clause 1 or Clause 2 hereof in or within six (6) years following approval of all the proposed zoning by-laws amendments more particularly described as Articles 2, 3, 4 and 5 of the Special Town Meeting of the Town of Sharon, Massachusetts scheduled to convene April 9, 1984 (the "Rezoning Articles") and receipt of approval of the Rezoning Articles by the office of the Attorney General of the Commonwealth of Massachusetts or after the expiration of time during which approval of the Rezoning Articles may be denied by the office of the Attorney General of the Commonwealth or in the event of an appeal, after entry of a final judgment determining that the Rezoning Articles are valid, whichever last occurs.

In the event that any of the Rezoning Articles are amended at the special town meeting then the Simeones shall have the right to determine whether the within option shall terminate or shall remain in effect with such amended Rezoning Articles. Notice of the Simeones' election shall be given to the selectmen in or within 14 days from the approval of such amended articles in written recordable form.

6B. Anything in Clause 6A hereof to the contrary notwithstanding neither the option rights under Clause 1 hereof or



Clause 2 hereof shall be exercisable prior to an application being filed by the Simeones for a building permit to construct a building which is not permitted within a "Single Residence District" as that term is defined by the town of Sharon By-Laws on any portion of the Simeones Land.

7. Upon the Rezoning Articles becoming effective the Simeones covenant to proceed or cause Cannon Forge to proceed and Cannon Forge covenants to proceed with due diligence and reasonable efforts to obtain the necessary permits and approvals to develop Simeone's Land in Sharon pursuant to a plan entitled "Development Plan - Cannon Forge" dated March 1, 1984, a copy of which is on file in the office of the town engineer of the town of Sharon. However if the Rezoning Articles aforementioned (or the amended Rezoning Articles acceptable to the Simeones) do not become in force and effect or if any necessary permit or approval for the development of the Simeone's Land as provided herein is denied, then both options under Clauses 1 and 2 shall terminate and shall be without further force and effect. A joint notice executed by the selectmen of the town of Sharon and the Simeones, recorded in the Norfolk Registry of Deeds shall be conclusive evidence of the termination of the options.

8. For so long as these options shall remain in effect and executory the Simeones shall construct no buildings on the Simeone's Land in Sharon.

9. In the event of the exercise of an option pursuant to Clause 1 or 2 hereof then the Simeones shall assume responsibility for the reclamation of the gravel pit mined





by the town as required by the Gravel Removal by-laws of the town of Sharon and the Town shall be released from this responsibility.

This agreement, though executed by the parties and recorded with the Norfolk Registry of Deeds, shall become effective only if, as and when Article 1 of the Special Town Meeting of the town of Sharon, Massachusetts, scheduled to convene April 9, 1984 shall become in full force and effect.

A joint notice by the Town and the Simeones that Article 1 did not become effective which is recorded in the Norfolk Registry of Deeds shall constitute conclusive evidence thereof.

IN WITNESS WHEREOF the parties have hereunto set their hands and seals and Falcon Associates - Architects, Inc., a Massachusetts corporation and general partner of Cannon Forge Development Co. authorized to execute in behalf of Cannon Forge Development Co. has hereunto set its hand through its authorized officer and its corporate seal this day and year first above mentioned.

THE TOWN OF SHARON, MASSACHUSETTS

BY: \_\_\_\_\_  
Selectman,

BY: \_\_\_\_\_  
Selectman,

BY: \_\_\_\_\_  
Selectman,



CANNON FORGE DEVELOPMENT CO.

BY: FALCON ASSOCIATES - ARCHITECTS, INC.

BY: \_\_\_\_\_  
President/Treasurer

\_\_\_\_\_  
SALVATORE B. SIMEONE, Individually  
and as Trustee

\_\_\_\_\_  
MARIA J. LUONGO, Individually and as  
Trustee

\_\_\_\_\_  
BENJAMIN A. SIMEONE, JR.

COMMONWEALTH OF MASSACHUSETTS  
Norfolk, ss. April 9, 1984

Personally appeared the above named  
Selectman of the Town of Sharon, Massachusetts and acknowledged  
the foregoing to be the free act and deed of the Town of  
Sharon, before me

\_\_\_\_\_  
Notary Public  
My commission expires:

COMMONWEALTH OF MASSACHUSETTS  
Norfolk, ss. April 9, 1984

Personally appeared the above named  
Selectman of the Town of Sharon, Massachusetts and acknowledged  
the foregoing to be the free act and deed of the Town of  
Sharon, before me

\_\_\_\_\_  
Notary Public  
My commission expires:





COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

April 9, 1984

Personally appeared the above named  
Selectman of the Town of Sharon, Massachusetts and acknowledged  
the foregoing to be the free act and deed of the Town of  
Sharon, before me

---

Notary Public  
My commission expires:

COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

April 9, 1984

Personally appeared Edward J. Lyons, President and  
Treasurer of Falcon Associates - Architects, Inc. and acknowledged  
the foregoing to be the free act and deed of such corporation  
as general partner of Cannon Forge Development Co., before  
me

---

Notary Public  
My commission expires:

COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

April 9, 1984

Personally appeared Salvatore B. Simeone and acknowledged  
the foregoing to be his free act and deed individually and  
as a trustee, before me

---

Notary Public  
My commission expires:



COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

April 9, 1984

Personally appeared Maria J. Luongo and acknowledged the foregoing to be her free act and deed individually and as a trustee, before me

---

Notary Public  
My commission expires:

COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

April 9, 1984

Personally appeared Benjamin A. Simeone, Jr. and acknowledged the foregoing to be his free act and deed before me

---

Notary Public  
My commission expires:





EXHIBIT A  
QUITCLAIM DEED  
OPTION AGREEMENT

WHEREAS, Salvatore B. Simeone, Maria J. Luongo and Benjamin A. Simeone, Jr., of Weston, Norfolk County, tenants in common, Maria J. Luongo and Salvatore B. Simeone, trustees of Simeone Associates Trust under a Declaration of Trust, dated February 28, 1974 and recorded in Norfolk Deeds, Book 5021, Page 231 and Cannon Forge Development Co., a co-partnership having a usual place of business at 77 North Washington Street, Boston, Suffolk County, Massachusetts, jointly and severally (all of whom are hereinafter referred to as "grantor"), own a parcel of land, containing approximately 621 acres, shown on a plan of land entitled "Plan of Land to be Retained by Cannon Forge Development Co. in Sharon and Foxborough, Mass., dated March 30, 1984, prepared by Norwood Engineering Co., Inc. and recorded in Norfolk County Registry of Deeds, Plan Book       , Page       , (called "Retained Land Plan") of which approximately 321 acres are situated in Sharon and approximately 300 acres are situated in Foxborough, said land located in Sharon including Parcel A but excepting Parcels 1, 2 and 3, shown on the aforesaid plan, being hereinafter referred to as "Retained Land";

WHEREAS, included within the Retained Land in Sharon is a parcel of registered land, containing approximately        acres, shown on the aforesaid plan and described in Certificate of Title No. 99365;

WHEREAS, the parties hereto propose to swap Parcels 1, 2 and 3, owned by grantor, in exchange for Parcel A, owned by the Town of Sharon, Massachusetts, also shown on the aforesaid plan.



For the consideration of One (\$1.00) Dollar paid, grantor grants to the town of Sharon, a municipal corporation having its principal office in the town office building, South Main Street, Sharon, Norfolk County, Massachusetts, with quitclaim covenants, three parcels of land situated off South Main Street in Sharon and being shown on the aforesaid plan as lots 1, 2 and 3 and bounded and described as follows:

PARCEL 1

Beginning at a point on the grantor's property line, said point being the intersection of the westerly line of the Montaup Power Company Easement and the grantor's northern most property line; thence leaving said point and running along said line of easement South  $34^{\circ}$  East, Three Hundred Ninety Five (395) feet more or less to a point; thence South  $83^{\circ}$  West, Eight Hundred Fifty (850) feet more or less to a point of curvature; thence by a curve to the right having a radius of Four Hundred (400) feet One Thousand One Hundred Fifteen (1,115) feet more or less to a point of tangency; thence by a curve to the right having a radius of Four Hundred (400) feet Eight Hundred Eighty (880) feet more or less to a point; thence North  $89^{\circ}$  East, Fifty-Five (55) feet more or less to a point; thence South  $11^{\circ}$  East, Six Hundred Thirty-Four (634) feet more or less to a point; thence North  $83^{\circ}$  East, Four Hundred Sixty (460) feet more or less to a point; thence North  $33^{\circ}$  East, One Hundred Seventy (170) feet more or less to a point; thence South  $75^{\circ}$  East, Three Hundred Ten (310) feet more or less to the point of beginning. Containing 20.7 acres more or less.





## PARCEL 2

Beginning at a point on the Easterly sideline of Furnace Street, said point being the intersection of the grantor's northern most property line with said easterly sideline and running South 11° West, One Thousand One Hundred Twenty (1,120) feet more or less to a point on the Westerly line of the Montaup Power Company Easement; thence North 34° West, along said line of Easement Seventy (70) feet more or less; thence North 11° East, One Thousand Seventy (1,070) feet more or less to a point; thence South 75° East, Fifty (50) feet more or less to the point of beginning. Containing 1.3 acres more or less.

## PARCEL 3

Beginning at a point on the Westerly side of Furnace Street, said point being One Thousand Five Hundred feet more or less North of the Sharon/Foxborough Town Line; thence turning and running South 62° West, Five Hundred Seventy (570) feet more or less to a point on the Easterly side of Gavin's Pond; thence along said Easterly side of Gavin's Pond, One Thousand Three Hundred Fifty (1,350) feet more or less to a point on said Easterly side of pond; thence North 50° East, Five Hundred Seventy (570) feet more or less to a point; thence South 33° East, Four Hundred Ninety (490) feet more or less to a point on the Westerly sideline of Furnace Street; thence South 27° West, Five Hundred Seventy (570) feet more or less along said Westerly sideline to the point of beginning. Containing 12 acres more or less.



## I. RESERVATIONS

Reserving unto the grantor

(1) a conditional right of access to parcel 1 shown on the Retained Land Plan for the purpose of locating a site for a pond and of constructing the same thereon, as well as inspecting, repairing, altering and enlarging the said pond provided that construction of said pond is reasonably found by the Town of Sharon conservation commission to be environmentally sound and provided, further, that this right may only be exercised after the first of the following two events to occur: (i) the selectmen shall have located a well site on said parcel 1 and have notified the grantor in writing of the precise location of the well site , or, (ii) at or after the five year period following the date on which the Town of Sharon planning board shall have approved the first subdivision on any of the retained land.

Anything in this reservation to the contrary notwithstanding the grantor may at any time before the occurrence of either of the above stated events construct such pond provided that at its own expense the grantor locates a suitable well site on parcel 1 or the Selectmen shall be reasonably satisfied that there is no suitable well site thereon.

No part of the proposed pond shall be constructed over the located well site.





(2) an easement to enter parcels 1, 2 and 3, shown on the Land Transfer Plan as well as an easement to enter upon all of the land designated by hatch-lines on the plan entitled "Development Plan - Cannon Forge" dated March 1, 1984, a copy of which is on file in the office of the town engineer of the Town of Sharon (hereinafter called "Development Plan") for the purpose of inspecting and observing and performing all of the restrictions, covenants and agreements herein contained.

(3) None of the foregoing rights or easements shall be so exercised as to unreasonably interfere with the use of the foregoing parcels and land by the Town of Sharon and its inhabitants.

## II. EASEMENTS

Together with the following perpetual rights and easements:

1. To use so much of the roads, shown on the Development Plan as are situated in said Sharon, for all purposes for which public ways are used in Sharon;

2. To use a thirty-foot wide strip of land running from the road nearest to parcel 1, shown on the Retained Land Plan, to said parcel 1, if the said parcel does not abut a usable road, for suitable access to the said parcel for the purpose of locating a well site and constructing a municipal well thereon, together with the necessary appurtenances therefor, and for inspecting, repairing, altering, enlarging and replacing the



same, the location of such strip and the construction thereof to be made by the grantor and to be at the expense of the grantor.

3. To use a thirty foot wide strip of land to parcel 3, shown on the Retained Land Plan for suitable access to parcel 3 for the purpose of locating a well site and constructing a municipal well thereon, together with the necessary appurtenances therefor, and for inspecting, altering, enlarging and replacing the same, the location of such strip and the construction thereof to be made by the grantor and at the expense of the grantor.

4. To use together with the Town of Sharon's inhabitants and the Town of Foxboro's inhabitants the trails and open land as shown on the Development Plan and designated by hatch-lines both within the Town of Sharon and within the Town of Foxboro for the purposes of hiking, nature studying, historic site viewing, picnicing, horseback riding and other passive recreation;

5. To use, together with the town's inhabitants, the parking areas located on the land adjacent to Gavins Pond for the parking of motor vehicles and bicycles and the tethering of horses, while using the trails and the land, described in paragraph 4 above, for the purposes set forth therein.

6. To enter upon land (even though without Sharon) on which the sewage treatment plant and leaching facility are constructed and in which sewage pipes or drains and other appurtenances have been installed, for the purpose of insuring that the restrictions, covenants and agreements herein contained are being





observed and performed. Such right shall be exercised so as not to unreasonably interfere with grantor's use of the property.

7. . To pass and repass over the trails, parking areas and open land referred to in paragraphs 4 and 5 above for the purpose of insuring that the restrictions, covenants and agreements herein contained are being observed and performed. Such right shall be exercised so as not to unreasonably interfere with grantor's use of the property.

### III. RESTRICTIONS, COVENANTS AND AGREEMENTS

Together with the following restrictions and covenants, as appurtenant to the whole or any part of the granted parcels, which restrictions and covenants shall become binding and effective only if, as and when the grantor shall file its first application for a building permit to construct a building not permitted within a "Single Residence District", as that term is defined in the Town of Sharon by-laws. The grantor within fifteen (15) days of filing such application shall deliver to the Board of Selectmen a notice in recordable form of the fact that it has applied for such permit. Upon such restrictions and covenants becoming binding they shall be imposed on the land retained by the grantor containing 321 acres more or less in Sharon and shown on the Retained Land Plan and where expressly stated shall also run with that portion of the land shown on the Development Plan as is located in the town of Foxboro (called "Foxboro Land"); said restrictions and covenants shall run with



the land and the grantor covenants with the grantee that all of said restrictions and covenants will be faithfully observed and performed by the grantor, its heirs, successors, representatives and assigns and that said restrictions shall continue in force for a period of thirty (30) years from their effective date.

1. No building construction on the retained land shall be commenced unless and until:

A. The plans and specifications for the construction of a sewage treatment plant and leaching facility in the Town of Foxboro shall have been approved by the Massachusetts Department of Environmental Quality Engineering (DEQE) and all authorizations for the location and construction thereof shall have been obtained; and

B. The grantor has obtained a proper surety company bond or a proper bond secured by money deposit or negotiable securities, sufficient in the opinion of the town of Sharon's planning board, to secure performance of the construction of the sewage treatment plant and leaching facility, even though located in Foxboro. Additionally, for each building for which an application for a building permit shall have been filed, the grantor shall obtain such a surety company bond or a bond secured as aforesaid, to secure the performance of the construction and installation of so much of all pipes, drains and appurtenances as may be required to connect that building either with the sewage treatment plant and leaching facility or with pipes





drains and appurtenances already connected to the sewage treatment plant and leaching facility.

C. Alternatively to 1(A) and (B), the grantor has obtained a satisfactory commitment from the town of Foxboro to run sewage pipes or drains and the necessary appurtenances from the retained land of the grantor in Sharon through the town of Foxboro to the town of Mansfield and a satisfactory commitment from the town of Mansfield, not only to continue to run said sewage pipes or drains and appurtenances through the town of Mansfield, but also to connect the same to the town's sewage treatment plant. The determination by the selectmen of the town of Sharon that such satisfactory commitments have been obtained and their certificate to that effect, suitable for recording in the Norfolk County Registry of Deeds, shall be conclusive and binding.

2. Before any building construction is commenced in an approved subdivision within the Retained Land in Sharon the grantor, with respect to so much of the retained land as is proposed to be developed in such subdivision, shall have complied with Article 23 of the Town of Sharon's General By-Laws and G.L. c. 131, §40 by notifying the town of Sharon's Conservation Commission in writing, of the intention to remove, fill, dredge or alter any bank, fresh-water wetland, flat, marsh, meadow, bog,



swamp, or lands bordering on any estuary, creek, river, stream, pond or lake, or any land under any of said waters, or any land subject to flooding, including such plans as may be necessary to describe such proposed activity and its effect on the environment, and the Commission shall have issued an order permitting such work with or without conditions either under Article 23 of the town of Sharon General By-Laws or under §40 of c. 131 of the General Laws, which has been complied with, and all appeal periods have elapsed.

3. Grantor covenants that (i) prior to applying for any building permit the grantor will, at its own expense, reconstruct Holly Lane (including a stop sign at South Main Street) from its intersection with South Main Street for a distance of 500 feet to and including a base course, to a width of at least 48' and with 30' curb radii, all in accordance with the rules and regulations of the Planning Board of the town of Sharon and (ii) that until the road improvements, described below, are completed, grantor will not apply (a) for any building permit for a nonresidential building if the "gross floor area" (as that term is defined in article V of the town of Sharon's zoning by-laws) of that building, when added to the gross floor areas of all nonresidential buildings located within the towns of Sharon or Foxboro or both for which building permits shall have previously been issued by the town of Sharon or the town of Foxboro or both, shall exceed 350,000 square feet; (b) for any building permit for





a residential building if the number of dwelling units in that building, when added to the number of dwelling units within the area of the Development Plan for which building permits shall have previously been issued by the town of Sharon or the town of Foxboro or both shall exceed 500 dwelling units; and (c) for any building permit if the total of the fraction obtained by dividing the gross floor areas (as the numerator) of all non-residential buildings for which building permits shall have previously been issued (as determined above) by 350,000 square feet (as the denominator) plus the fraction obtained by dividing the number of dwelling units for which building permits shall have been previously issued (as determined above) (as the numerator) by 500 (as the denominator), shall exceed one (1).

The grantor further covenants that in order to exceed, and before exceeding, the foregoing limits, the grantor will, at its own expense, design, construct, install and make all of the roadway, intersection and ramp improvements to South Main Street, Sharon, and Mechanic Street, Foxboro, from approximately 300 feet northeast of Holly Lane, Sharon to approximately 300 feet southwest of Oak Street, Foxboro, shown in the "Traffic Impact and Access Study Proposed Cannon Forge Development Foxborough/ Sharon, MA prepared for the Town of Foxborough, Town of Sharon, Cannon Forge Development Co." dated December, 1983, prepared by Vanasse/Hangen Associates, Inc., as well as such other improvements as may be required to assure that the level of



service for each of the intersections, shown in Figs. 8 and 9 in the aforesaid Vanasse/Hangen study, will remain at no worse than a "level of Service C" (as that term is defined in the Highway Capacity Manual 1965 ed. as amended prepared by Highway Research Board (Special Report No. 87)), based upon the projected traffic volumes for the year 1993<sup>1</sup> shown in the aforesaid Figs. 8 and 9. The grantor also covenants that before exceeding the foregoing limits, the grantor will at its own expense, employ a traffic engineer to make new projections and if such projections are different from the projected traffic volumes for 1993 shown in the aforesaid Figs. 8 and 9 and are determined to be reliable by the town of Sharon's planning board, then the new projections will serve as the basis for designing such improvements as may be required to assure that the level of service for each of the intersections, shown in Figs. 8 and 9, will remain at no worse than a "Level of Service C".

Before commencing the construction, installation and making of any of the aforesaid roadway, intersection and ramp improvements the design and specifications therefor shall be approved by the board of selectmen of the town of Sharon, the

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1. Vanasse/Hangen project that the Cannon Forge project will have been fully developed by that year. Included in the projection is a 1% per year growth in existing turning movements for each of the aforesaid intersections and links.





state Department of Public Works, and the Federal Highway Administration to ensure that the design and specifications therefor satisfy the criteria set forth in this preceding paragraph.

The grantor still further covenants that the grantor will, at its own expense, signalize the intersection of South Main Street and Walpole Street, Sharon, if and when the town obtains a warrant (approval) therefor from the state Department of Public Works.

4. Except as otherwise provided in this instrument, no buildings, structures, parking areas, roads, traffic improvements and controls, surface and ground water controls, trails, recreation areas, historic site improvements and emergency access roads shall be constructed, installed or made within the Retained Land other than in the areas as shown on the Development Plan a copy of which is filed in the office of the town engineer of the town of Sharon. Except if permitted in this document or by the By-laws of the Town of Sharon or Foxboro (whichever is applicable) none of the retained land in Sharon or Foxboro shall be used for any purpose other than shown on the Development Plan and consistent with the tabular summary on said plan.

5. No building or structure or groups of buildings shall be constructed on the Retained Land unless located on a lot in a sub-division (as that word is defined in G.L. c. 41, §81L), said subdivision being composed of a portion or all of the Retained



Land. The appropriate subdivision plans for the applicable lots shall also show the location and specifications of the traffic improvements and controls, surface and ground water controls<sup>2</sup>, trails, recreation areas, historic site improvements and emergency access roads (in addition to the other things required to be shown on a definitive subdivision plan), approved as to the Retained Land in Sharon by the town of Sharon's planning board in accordance with G.L. c. 41, §81U, and unless before the endorsement of the planning board's approval the construction, installation and making of the traffic improvements and controls, as provided in Paragraph 3 and surface and ground water controls, trails, recreational areas, historic site improvements and emergency access roads shown on the definitive subdivision plan shall be secured by a proper surety company bond or a deposit of money or negotiable securities (in addition to the security or covenant required by G.L. c. 41, §81U, for the securing of the construction of ways and the installation of municipal services) and the town's planning board may require that the time be

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2. Including the creation of (i) a pond immediately to the west of the proposed expanded Business B district between the cloverleaf at the intersection of I-95 and South Main Street and road "A", as shown on the Development Plan; (ii) the installation of a fountain therein to facilitate the evaporation of volatile substances that may have drained from I-95 towards Billings Brook; (iii) a drain control mechanism to prevent the passage of hazardous materials and oils, which may have drained from I-95 into said pond, from entering the groundwater recharge system and (iv) the installation of gasoline and oil traps between the areas, into which roads and parking lots of the expanded Business "B" and Office Park zoning District shall drain, and the groundwater recharge system





specified within which construction, installation or making of each such surface and ground water control, trail, recreational area, historic site improvement and emergency access road, or any portion of any of the foregoing, shall be completed. The amount of the bond, deposit of money or negotiable securities shall from time to time be reduced so that the amount bonded or deposited or the amount of the securities continues to reflect the actual expected cost of work remaining to be completed.

6. No building on the Retained Land in Sharon shall be constructed having a height above the level of the ground in excess of three stories or 45 feet, except in the area designated in the aforesaid Development Plan as Covenant Item #9 and then only if no higher than five stories or 65 feet, located no more than 1,000 feet from the center line of Interstate I-95, and located and allowed by special permit issued by the town's board of appeals.

7. None of the buildings and structures located on so much of the retained land as is within the town of Sharon shall ever be connected to any individual sewage disposal system, nor shall the owner of any building or the owner of any unit within a building ever be denied access to the sewage treatment plant, leaching facility and the sewage pipes or drains and other appurtenances between said plant and the building or unit so owned, so long as said owner ratably shares in the expenses of administration, maintenance, repair or replacement of the sewage



treatment plant and the other facilities connected therewith. In no case shall the sewage collection and treatment system serving the retained land discharge effluent or allow the same to seep within or into the Water Supply Set-Back District or the Water Resource Protection District, located in the town of Sharon and defined in the town's Zoning By-Law. The selectmen of the town of Sharon may require the grantor to verify compliance with this covenant to the Board's reasonable satisfaction.

7A. Water pipes located within the Retained Land in Sharon shall be looped where reasonable. The reasonableness shall be determined by the selectmen of Sharon. The grantor covenants to install a 12" loop main through the Retained Land in Sharon which will connect existing mains in South Main Street and Furnace Street. All water mains and related appurtenances within the town of Sharon shall be conveyed to the Sharon water department upon acceptance by such department and the grantor agrees to provide all suitable easements for the maintenance thereof.

8. In no event shall any of the following uses be permitted on the Retained Land in Sharon or the Foxboro Land: (A) funeral parlor; (B) photographic studies which entail film processing on the premises; (C) establishments for the on-premises cleaning or laundering of clothes or laundramats; (D) agricultural, horticultural or floricultural uses; and (E) gasoline service stations and automobile display rooms.





9. All of the roads and the sidewalks thereof shown on the Retained Land in the town of Sharon shall remain private ways in perpetuity.

10. Neither the grantor, its agents, employees, nor business invitees will ever use Furnace Street except for emergency vehicular access. The foregoing notwithstanding, until the two houses near Gavins Pond are provided with alternative access, the two occupants thereof and their guests and business invitees may continue to use Furnace Street. Grantor covenants that as soon as the two houses are provided with alternative access, grantor will construct at its own expense a suitable cul-de-sac and barrier in the place in Furnace Street and in accordance with the specifications required by the town engineer, remove the pavement to the south of the barrier and construct in place thereof a trail made of the materials and in the manner specified by the town engineer and suitable for use as an emergency vehicular access road.

10A. Neither the grantor nor any of its heirs, representatives, successors or assigns, will perform, or allow anyone else to perform, any of the following acts on parcels 1, 2 and 3 shown on the Retained Land Plan and designated by hatch-lines on the Development Plan.

(A) Except as permitted by the selectmen or their designee, no building, sign, outdoor advertising display, fence, mobile home, utility pole, or other temporary or permanent



structure will be constructed, placed or permitted to remain on said land;

(B) Except as is otherwise provided herein or by the Development Plan or as may be permitted by the Board of Selectmen:

B(1) No soil, loam, peat, sand, gravel, rock or other mineral substance, refuse, trash, vehicle body or parts, rubbish, debris, junk, waste or unsightly or offensive material will be placed, stored or dumped thereon;

B(2) No loam, peat, gravel, sand, rock or other mineral resource or natural deposit shall be excavated or removed from said land in such a manner as to affect the surface thereof;

B(3) No trees, grasses, or other vegetation shall be cut or otherwise destroyed except for maintenance purposes or for purposes of replanting or planting of trees, shrubs and/or flowers or for the purposes of complying with other covenants contained in this deed;

(C) No hunting or shooting shall be permitted on said land.

11. Historic sites, including, but not limited to, the stone dam at Gavins Pond and the cannon furnace, Gavin House and Fairbanks House sites as may be identified by the Sharon Historical Commission shall be protected and improved by the grantor in accordance with the advice and consent of the Sharon Historical Commission. The grantor covenants that the grantor





shall expend \$25,000 for such identification and improvements, excluding what is expended for roads and trails, if any, leading thereto, and recreational activities and parking areas adjacent to or near the historic sites; and shall submit evidence of such expenditure to the town accountant.

12. The grantor covenants that the grantor will acquire and install on so much of the land as is designated by hatch-lines on the aforesaid Development Plan in accordance with the recommendations of the town of Sharon's recreational director, benches, tables and benches and chairs, bicycle stands, and like site furnishings at a cost of \$5,000.00 for such acquisition and installation in Sharon and shall submit evidence of such expenditure to the town accountant.

13. The grantor covenants that the grantor will at all times maintain, at its own expense, in a good, safe, clean and sanitary condition the sewage treatment system, surface and ground water controls, recharge ponds, roads and sidewalks, trails, recreational and equipment areas, historic site improvements and emergency access roads; and that it will also, at its own expense, remove snow from the roads and sidewalks, parking areas and emergency access roads; and that the use of road salts and other substances in winter for safety purposes shall be in accordance with such standards and restrictions for salting as may be established from time to time by the town of Sharon.



14. Grantor covenants that grantor will not apply for any building permit for a building proposed to be constructed in a "water resource protection district," as that term is defined in the town of Sharon's zoning by-law, unless and until the town engineer of the town of Sharon shall approve a plan for a recharge facility for the lot, on which the proposed building will be located, showing the location and specifications for such recharge facility as follows: The recharge facility shall (i) be capable of retaining 250 cubic feet of water for each 1000 square feet of the "total recharge area" on the lot; (ii) be located above the maximum ground water table and not be located in an existing "wetland area", as that term is defined in article 22 of the town of Sharon's general by-laws or in G.L. c. 131, §40, as amended, (iii) be no deeper than 6 feet, (iv) be incapable of receiving any roadway drainage but may receive roof drainage, (v) the recharge area shall through proper grading and design be made tributary to the recharge facility; and (vi) shall be reasonably distributed within the water resource protection district and its location be approved by the town engineer.

For the purposes of this provision, the term "total recharge area" shall mean an area determined by multiplying the aggregate areas of all impervious surfaces, existing or proposed to be constructed or installed on the lot, by 45%.

Grantor further covenants that the grantor will not apply for any occupancy permit for a building on a lot unless and until the





recharge facility for that lot shall have been constructed in accordance with the approved plan.

15. The grantor also covenants for itself and its respective heirs, representatives, successors and assigns (i) that the restrictions, covenants and agreements contained herein shall run with the land and bind the grantor and its heirs, representatives, successors and assigns; (ii) that each deed and mortgage of successors in title shall refer to the restrictions, covenants and agreements contained herein and shall provide that the grantee takes title subject to and with the obligation to perform and observe such restrictions, covenants and agreements which shall run with the land, insofar as they may be in force and effect, and (iii) that the town shall have the right to enforce the foregoing restrictions, covenants and agreements against all persons and to remedy any violation thereof and to back charge the grantor for all reasonable expenses, costs, attorney's fees and charges for the enforcement of the restrictions, covenants and agreements and for the remedying of any violation thereof in the event of the retention of counsel, provided that the Town shall be successful in its enforcement proceedings; (iv) that, except as otherwise provided herein, the design and construction of all site improvements on the retained land required herein shall be in accordance with the planning board's rules and regulations, or, if not applicable, subject to

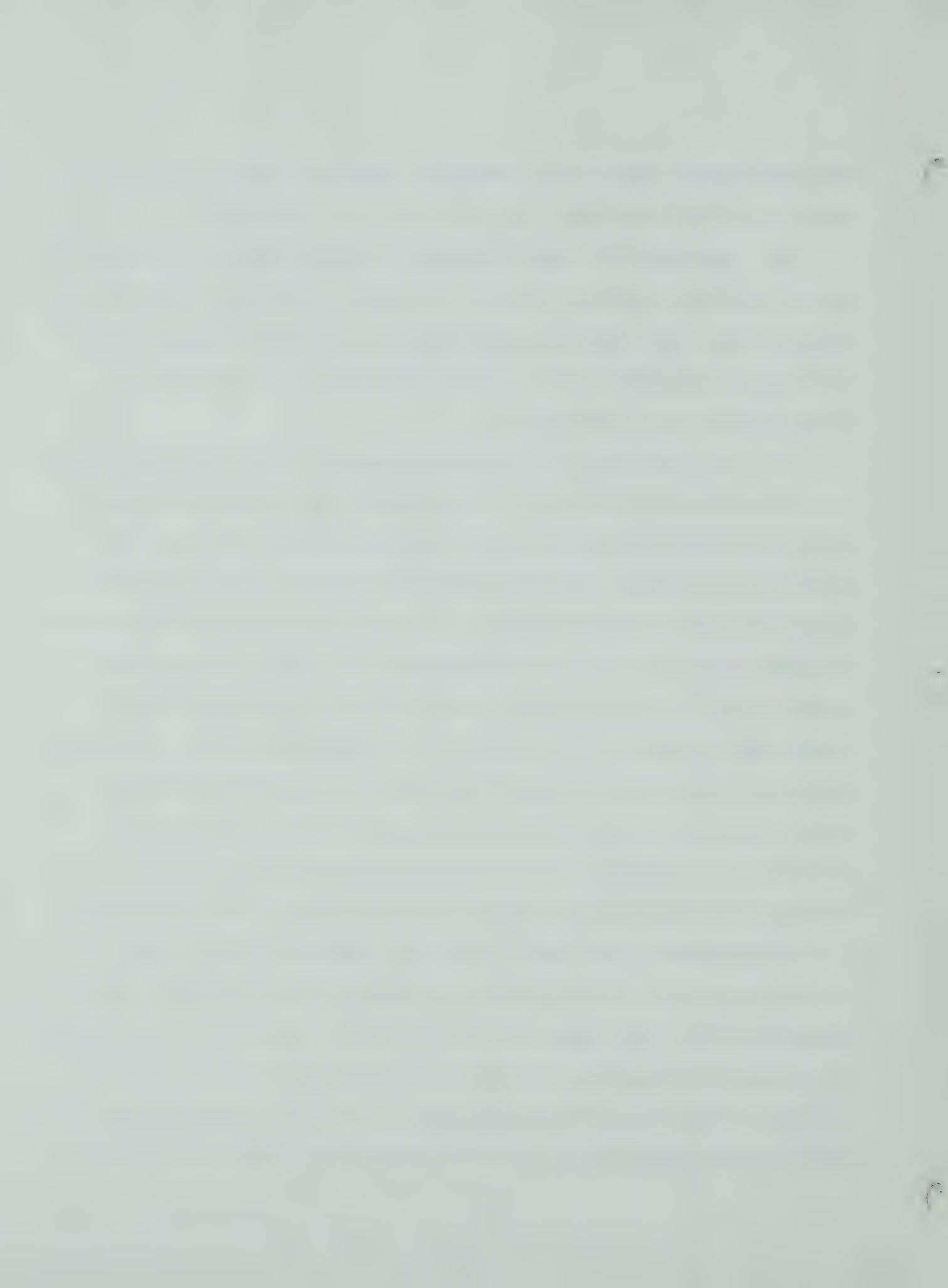


the reasonable approval by the town engineer of the town of Sharon or by an engineer designated by the selectmen.

16. Anything in these covenants, restrictions or agreements to the contrary notwithstanding no person or entity shall be held personally liable for non-performance or violation except for a violation occurring during a period of time in which he or it shall have been a title holder.

17. The issuance of a building permit for any building from time to time to be erected in accordance with the Development Plan and these restrictions and covenants shall be final and conclusive evidence that the proposed building (when built in accordance with plans pursuant to which such building permit was issued) complies with the Development Plan and the foregoing restrictions and covenants: provided that the grantor shall notify the selectmen in writing of the application for a building permit; and provided further that the selectmen within thirty days after the receipt of such notice do not by vote question whether the proposed construction will comply with the Development Plan and the foregoing restrictions and covenants.

By accepting this deed, the town covenants that it will not file a notice of a lis pendens against any lot within an approved subdivision in the retained land for or on account of the refusal or failure to construct, install or maintain any improvement, whether within or without that subdivision, if a proper bond securing the performance of the construction, installation or





maintenance, as the case may be, has been filed with the town of Sharon's planning board.

18. The grantor covenants that before conveying any interest in and to any lot or building or to any unit or portion of any thereof, grantor will suitably obligate the owner to ratably share in the expenses of administration, construction, installation, maintenance, repair, or replacement of the sewage treatment plant and the other facilities connected thereto, roads, parking areas, trails, traffic improvements and controls, surface and ground water controls, recreation areas, historic site improvements, and emergency access roads by the formation of a corporation, trust or other entity owned or to be owned by the owners of lots, buildings and commercial or residential units; but in no event shall the obligation of all of the owners, collectively, of all of the Retained Land, the buildings constructed thereon and the units therein be less than 100% of all the expenses of the aforesaid administration, construction, installation, maintenance, repair, and replacement except that as to those covenants which relate to the Foxboro Land as well as to the Retained Land, such ratable share may be allocated to attain 100% among all of the owners of the lots, buildings, units or portions thereof both on the Retained Land and the Foxboro Land.

19. The grantor covenants that if on or before July 1 \_\_, 1989 the town shall complete explorations for and the locating of well sites on parcels 1 and 3 of the ~~Retained~~Land Plan, then



in such event no later than two years following issuance of the first building permit issued to the grantor it will reimburse the Town for the costs of such explorations and locating to a maximum total reimbursement of \$25,000.

For the title of the tenants in common see Norfolk Deeds, Book 5111, Page 32, Book 5207, Page 158 and Certificate of Title No. 99365.

For the title of the trustees see said Deeds, Book 5802, Page 382.

IN WITNESS WHEREOF the parties have hereunto set their hands and seals this                      day of                      198 .

\_\_\_\_\_  
SALVATORE B. SIMEONE, INDIVIDUALLY AND AS  
TRUSTEE

\_\_\_\_\_  
MARIA J. LUONGO, INDIVIDUALLY AND AS  
TRUSTEE

\_\_\_\_\_  
BENJAMIN A. SIMEONE, JR.

CANNON FORGE DEVELOPMENT CO.

BY: FALCON ASSOCIATES - ARCHITECTS, INC.

BY: \_\_\_\_\_  
EDWARD LYONS  
President and Treasurer





EXHIBIT B  
QUITCLAIM DEED  
OPTION AGREEMENT

The town of Sharon (Grantor), a municipal corporation having its principal place of business at the Town Office Building, South Main Street, Sharon, Norfolk County, Massachusetts, for the consideration of One (\$1.00) Dollar paid, grants to Salvatore B. Simeone, Maria J. Luongo and Benjamin A. Simeone, Jr., of Weston, Norfolk County, tenants in common, Maria J. Luongo and Salvatore B. Simeone, trustees of Simeone Associates Trust under a Declaration of Trust, dated February 28, 1974 and recorded in Norfolk Deeds, Book 5021, Page 231, and Cannon Forge Development Co., a co-partnership having a usual place of business at 77 North Washington Street, Boston, Massachusetts ("Grantee"), with quitclaim covenants all of its right, title and interest in and to a parcel of land shown as Parcel A on a plan of land entitled "Plan of Land to be Retained by Cannon Forge Development Co. in Sharon and Foxborough, Mass.", dated March 30, 1984, prepared by Norwood Engineering Co., Inc. and recorded in Norfolk County Registry of Deeds, Plan Book , Page , containing approximately 25 acres of land and bounded and described as follows:

Beginning at a point on the Sharon/Foxborough Town Line, said point being approximately 520 feet East of a Town bound at an angle point in said Town Line between Oak Street and East Street (Foxborough); thence turning and running North 37° West, One Thousand Seven Hundred (1,700) feet more or less to a point; thence North 58° East, Five Hundred Forty-Five (545)



feet more or less to a point, thence North 64° East, One Hundred Ten (110) feet more or less to a point; thence South 36° East, One Thousand One Hundred Seventy (1,170) feet more or less to a point; thence South 37° East, One Hundred Fifty-Five (155) feet more or less to a point; thence North 53° East, One Hundred Fifty (150) feet more or less to a point; thence North 55° East, Sixty-Five (65) feet more or less to a point on the Westerly line of the Montaup Power Company Easement; thence South 34° East, Sixty-Five (65) feet more or less to a point on the Sharon/Foxborough Town Line; thence South 40° West, Nine Hundred Twenty (920) feet more or less to the point of beginning.

Said Parcel A is conveyed subject to the easements and restrictions, covenants and agreements, set forth in a deed of even date, from Salvatore B. Simeone, Maria J. Luongo and Benjamin A. Simeone, Jr. of Weston, Norfolk County and Maria J. Luongo and Salvatore B. Simeone, trustees of Simeone Associates Trust under a Declaration of Trust, dated February 28, 1974 and recorded in Norfolk Deeds, Book 5021, Page 231 and Cannon Forge Development Co. to the town of Sharon and incorporated herein by reference, which restrictions, covenants and agreements, upon becoming effective, shall be imposed on the said Parcel A and shall run with the land and Grantee herein covenants with the town that all of said restrictions, covenants and agreements





will be faithfully observed and performed by the Grantee and its heirs, representatives, successors and assigns.

For the town's title, see Notice of Disposal in Tax Lien Case, Land Court Case No. 35822, recorded on May 18, 1960 in Norfolk Deeds, Book 3816, Page 46.

IN WITNESS WHEREOF the selectmen of the town of Sharon, hereunto duly authorized affix their signatures this            day of            , 198 .

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

COUNTY OF

COMMONWEALTH OF MASSACHUSETTS

, 198

Then personally appeared the above-named and acknowledged the foregoing to be the free act and deed of the town of Sharon, before me

\_\_\_\_\_  
Notary Public  
My commission expires:







The other two intersections will continue to operate at acceptable levels of service during both the AM and PM design hour. The South Main Street/East Foxboro Street intersection will operate at Level of Service "A" during the AM peak hour and Level of Service "C" during the evening peak hour under 1993 build conditions. The critical movement (left turn out of East Walpole Street) at the unsignalized intersection of South Main/East Walpole will operate at a Level of Service "B" during the AM peak and Level of Service "C" during the evening peak hour. Other movements (i.e. South Main Street traffic flow) will tend to operate at higher levels of service.